THE

AGRICULTURAL MAGAZINE.

CAMDEN, NEW JERSEY, MAY 1st, 1826.

We recommend the interesting communication from our very ingenious correspondent, "D. G. S*****," on the subject of the Grazier's Ready Reckoner, to the impartial attention of farmers interested in grazing, and feeding cattle, &c. We cannot conceive upon what principle any table could be constructed to ascertain the weight of beasts generally, by the mere height and girth, with sufficient accuracy to be depended upon by the farmer in making sales, as there are most certainly other circumstances, such as the species, the stock, the frame and the degrees of fat or leanness, &c. which must have more or less influence on their weight, as well as that of length and girth; and think, that more confidence is to be placed in experienced graziers or victulars who have become properly qualified by experience and observation, to judge the weight of beasts from the whole of these circumstances connectively, than on any table that can be formed.

The observations, also, from our friend Doctor John A. Elkinton, relative to the situation of Barn Yards, &c. we presume will be read with interest, as there is, no doubt, much valuable manure lost to many farmers, by not attending properly to the location of their barn yards; but notwithstanding the plan of using no other fencing on a farm except the enclosure, has been repeatedly urged by intelligent agriculturalists, and has been introduced by some, apparently with advantage, yet its general practicability and utility under existing circumstances in this country, remain as yet undetermined in the minds of many, and will probably do so. however useful the system may be, until the scarcity of materials for fencing shall enforce its necessity, and a more general disposition to cultivate the growth of upland grasses, remove the popular objections to it.

The weather, since the ushering in of spring, has been as changeable as the past winter, and generally inclining to cold and backwardness; from the afternoon of the 9th to the morning of the

11th of April, the thermometer marked a variation of 32 degrees of atmospheric temperature, that is, it fell from 60 degrees to 28, or to two degrees below the freezing point; since which, there have been several severe frosts, insomuch as to injure some of the earlier fruits, particularly the early cherries; peaches have been destroyed in the germ in many places, but from the present prospects we presume they will generally produce but little, if any, short of an average crop. The earth has in some measure, been relieved from the effects of the extreme drought of the last season, by copious falls of rain in March and April, and spring has, as it were, within a few days past, burst suddenly upon us with almost the heat of summer, the thermometer having ranged as high as 83 degrees; this genial heat combined with the moist state of the surface of the soil, has imparted to the vegetative principle an instantaneous and rapid impulse; the fields and meadows have assumed their accustomed garb of green; Flora has spread her delightful and ambrosial mantle o'er the orchards; the forest trees which a fortnight since were nearly as bare as in midwinter, are now putting forth their leaves, which begin to expand to the fanning breeze, to sip the nectared dews, and to revel in the luxuriance of Zepher's balmy kisses.

The industrious husbandman too, has not been idle; a series of unproductive seasons in some species of crops, from causes utterly beyond his controle, have excited him to early and renovated exertions in preparing the earth to receive the seed; hardly had the soil been freed from the cold embraces of the frost, ere our ears were greeted with the cheerful wistle of the plough-boy, and the surrounding country appeared to team with industry; whole fields were ploughed up, early vegetables and trucks were planted, and preparations made for planting the later crops, in order that they may have the advantage of the earliest stimulus to vegetation.—May a rich and plentiful harvest be the reward of such honest industry and perseverance.

Corn, rye, oats and potatoes, command a higher price this spring than they have done for several years past; and several thousand bushels of potatoes have been imported and sold in Philadelphia from Europe and some of the Eastern States. This enhancement of the nominal value of these staple productions may be attributed more to the shortness of the crops the last season, than to any extraordinary call for them abroad, although we think the exertions making by government to secure a proportionable interest in the South American trade, if successful, will have a tendency to promote the interest of the agriculturalist.

The last Philadelphia Price Current quotes red wheat from 80 to 90 cents per bushel; white ditto from 90 to 95; rye from 62 1-2 to 67; corn from 70 to 78; barley from 75 to 80; oats from 42 to 45; peas from 85 to 1 dollar 25, and beans from 1 dollar 50 to 1 dollar 75 cents per bushel. Hams from eight to twelve cents per pound; lard from eight to nine cents; butter in keys from nine to ten cents; and cheese from seven to ten cents. Clover seed from

4 dollars to 4 25 cents per bushel; herd grass from ——— timothy about 2 75, and orchard grass from 62 1-2 to 75 cents per bushel.

JERSEY CATTLE.

Weight and dimensions of an ox fed by Mr. Charles French, of Burlington county, N. J. slaughtered by Mr. Smick and sold in the Trenton, market on the 25th of February last.

DIMENSIONS.	*ft.*	*inch.*
From the point of the buttocks to the root of the horns	9	2
Girth back of the shoulders	9	3
Ditto round the middle of the body	10	0
Width across the hips	3	0

WEIGHT	*lbs.*
Alive	2768
Dead	1875
Exclusive of rough tallow	0448
Whole weight, beef & tallow	2323

This ox, we understand, was only two years in feeding, and was slaughtered and dressed in a plain way.

GLOUCESTER COUNTY, CATTLE.

Three bullocks were slaughtered by Mr. Samuel C. Champion, and sold in the Jersey market, Philadelghia, on the 4th of March last. One fed by himself measured and weighed:

	ft.	*inch.*
From the fore part of the shoulder blade to the tip of the buttock	6	3
From the root of the horn, do.	8	6
Height of the withers	5	6
Girth just behind the fore legs	9	0
Width across the hips	2	8½

WEIGHT.	*lbs.*	
Alive,	2770	
Dead, including hide and tallow	2210	
Fore quarters	1098	
Hind quarter	759.	.1857
Rough tallow	250	
Hide	103...	2210

This ox is remarkable for the weight of meat and tallow compared with its size, and also for the lightness of its hide. Although smaller in measure than the one recently slaughtered in Philadelphia, yet it weighed heavier dead and alive. It was six years old, fed two yearr; the first, pastured and wintered with fodder and a small portion of grain occasionally, the second year, during pasture, was given a little grain, and during winter, fed alternately with hay, indian meal, oats and turnips. The best pieces of the meat were sold at 25 cents per pound, and have proved to be tender, juicy and well tasted. Upon the whole, this animal has been generally ad-

mired, and Mr. Champion's judgement in selection, and management in the fattening of this fine creature well spoken of, and I hope not unrewarded.

The two other oxen were fed by Mr. Samuel M. Reeves, and weighed——

Fore quarters	685 lbs.	Hind quarters	548——1233
Do. do.	650	do. do.	522——1172

The above weights were taken by Messrs. George Beck and J. Henszey, clerks of the High Street Market. X.

The following is the weight of eight hogs killed in Cumberland county, New Jersey, in February last. The six first, from the pen of Mr. Norton Harris; the seventh, only seventen months and eighteen days old, from the pen of Mr. Johnson, and the eighth from that of Mr. Jeremiah Buck, the whole averaged upwards of 618 lbs. each

Mr. Norton Harris's Hogs.	No. 1	792
	" 2	660
	" 3	612
	" 4	597
	" 5	575
	" 6	544
		3,780
Mr. Johnston's, aged eighteen months and seventeen days.	" 7	644
Mr. Jeremiah Buck's,	" 8	522
	Total,	4946

This specimen of fine pork is, perhaps, without a parallel in any one neighborhood, and is a practical illustration of the beneficial results of intelligent and well directed Agricultural Societies, in the improvement of husbandry, and domestic economy. The original stock of these hogs, we learn, was imported by Mr. Johnston, to whose enterprize and industry, in connection with the laudable exertions of the Cumberland Agricultural Society, in encouraging exertions in agricultural pursuits generally, and in improving every species of stock particularly, the county of Cumberland is not only indebted for this very extraordinary crop of pork, but to many other successful agricultural experiments, the happy effects of which appear to be gradually spreading in other counties, and will, we hope, form the basis of a more general organization of Agricultural Societies in this state.

FOR THE FARMER'S MAGAZINE.

As I have not seen it yet published, I send you the measurement I took of the Cattle and Swine lately slaughtered at Philadelphia. Of the swine, the girth was taken perpendicularly round the body close behind the shoulder blade, and the length from the tip

of the snout, over and along the back to the root of the tail; of the cattle, the girth in the same manner, but the length was from the fore part of the shoulder blade along the hips to the tail.

	Girth		*Length*		*Weight of Meat.*
One hog 2 years old,	7 feet 4½ inches,		6 ft. 9 in.		861 lbs.
	7		7	10	843
	6	6	7	5½	793
Brindle Ox,	8	7	6	8	1718
White Spot,	9	6	7	2	1845

X.

FOR THE FARMERS' MAGAZINE.

NEAR HADDONFIELD, Feb. 23th, 1826.

Mr. Samuel Ellis,

Having lately witnessed, in one of my neighbours, a novel mode of ascertaining the weight of animals, my attention was given to the principle of it; I expressed doubts of its correctness, and was referred to the table of the Grazier's Ready Reckoner, in the 4th volume, and 24th number of the American Farmer. Notwithstanding the asurance therein given "that the most confident reliance may be placed in the accuracy of the table," I have chosen to investigate it, lest some unsuspecting persons might be deceived by the use of it.

This table purports to show by inspection, simply by the measurement of their girth and partial length, the nett weight of black cattle, sheep and swine. If this result could be obtained with tolerable accuracy, the table would be very serviceably to most farmers; if, on the contrary, it should appear to have been arbitrarily constructed, and to contain important errors, it much concerns dealers in those animals to refuse it their confidence. From the fact of their length and girth only, being the index of their weight, I assume that the bodies of those animals are considered as cylinders, consequently the ratio of their weight should be analogous to the contents of this figure: Now, as cylinders of the same altitudes are to each other as their bases, so the difference of weight of each animal of like length but increasing girth, should constitute a series of ascending weights in arithmetical progression. This agreement, however clear to my mind, does not suit any part of the said table; Let us take seven cattle, each of six feet length, and increasing one inch in girth: by the table it appears that

	feet.	inches.		lbs.
No. 1, of	7	6	girth, would weigh	1133
2,	7	7		1159
3,	7	8		1180
4,	7	9		1210
5,	7	10		1235
6,	7	11		1263
7,	8	00		1289

Hence I deduce that No. 2 is heavier than No. 1, 26 lbs.
3 2, 21
4 3, 30
5 4, 25
6 5, 28
7 6, 26

Instead of an ascending series of differeces, we have the weight between No. 1 and 2 the same as between No. 6 and 7; and what is equally surprizing, if there be any truth in mensuration, the greatest difference is found between No. 3 and 4, it being 30 lbs.!!!

Admitting the principle, that length and girth are sure indications of weight, yet this table ought not to be *relied* on, because of the great errors just proven.

But I am opposed to the principle; until I become more skilled in comparative anatomy, I shall disbelieve that the conformation corresponds of oxen and rams, of calves and hogs, of heifers and lambs, of bulls and weathers, and of pigs and cows, without regard to sex, age, condition or other circumstances. Two oxen of the same measurement, the one large frame and lean, the other small frame and fat; according to the table, they would weigh alike; this is so obviously wrong, that it is hardly necessary to adduce evidence; whoever doubts that a fat beast is specifically heavier than a lean one, let him view its insides, and he will be satisfied from its greater fullness alone, of his mistake. Let us suppose a well fatted ox of an ascertained weight should become extremely lean, to verify the table, his dimensions should decrease much in girth, and much in length, fat, flesh and bone too should disppear, but as the diminution of length would be inconsiderable, and I strongly suspect his bones would not consume themselves, nor yet contract, to accommodate the author of the table, it is evident that by this new fashion mode of calculation, the loss of weight would be only partially exhibited.

That some breeds of cattle, bulk for bulk, are heavier than others, who can dispute, after being acquainted with the present improved stocks! the short horn possess on other parts than those the wonderful string surrounds an *extra*-ordinary quantity of flesh and fat. You, Mr. Editor, will deem this fact conclusive against taking size in that manner for weight, but lest there remain some persons who may be led into error, I will refer them to cattle whose weight and dimensions were ascertained according to the good old mode, with equipoised scales, and recorded in the 2d volume, 41st number of the American Farmer.

	No. 18 an Ox.	No. 8 a Heifer.
Girth	8 feet 8½ inches,	Girth 8 feet 9 inches.
Length	9 0	Length 8 9
Weight	2026¾ lbs.	Weight1548 lbs.

Now sir, according to the Cylindrical Philosophy, the solid content of the Ox is 69.04 cubic feet, and of the Heifer, 67.7 cubic feet: the ox therefore would appear in the table, about 2 per cent heavier than the heifer, while his real weight is 31 per cent!!!

If after this demonstration any of our farmers value not 399 lbs. of

meat on a single one of his oxen, he has my consent to adhere to the new fashion of weighing by the "string and table of the Grazier's ready reckoner."

D. G. S*****.

P. S. To satisfy myself that the table is founded on Cubic measurement, I subjoin my calculations for various dimensions and weights, these results show how destitute is the table of precision.

girth.	length.	cubic feet.	tabular weight.	wei't per cubic foot.
8 f 5 i	6ft.	33 .816	1427 lbs.	42 .196 lbs.
7 5	6	26 .256	1106	42 .123
6 5	6	19 .614	0825	41 .984
5 5	5	11 .670	0490	41 .989
4 5	4	06 .204	0262	42 .023
3 5	3	02 .784	0118	42 .349

Average weight per cubic foot on the above six dimensions, 42.145 lbs.

TO THE EDITOR OF THE FARMER'S MAGAZINE.

ECONOMY OF MANURING.

It not unfrequently happens, that barn yards are located on the declivity of a hill; with a view no doubt of obtaining a dry and healthful situation for the stock. By this kind of management the most nutritious part of the barn yard secretion, in fact the very essence of the manure is permitted to float off, or perhaps conducted into an adjacent pond, or water course. I would recommend a level spot of ground with an excavated centre, leaving a sufficiency of slope and surface, to admit of a dry bed for the cattle. By this means, all the fluid from the animal, as well as rains which wash off, otherwise the richest particles of the yard are concentrated into one spot; and what is more proper, a reservoir or cistern would be a matter of economy, further to accomplish this purpose. I have seen in Burlington county a pump attached to this sort of a well, by which an opportunity is afforded, to moisten the vegetable matter constituting the compost beds of some farmers, and thereby facilitate the putrefactive process of the mass—for moisture combined with heat, contributes greatly to expedite the decomposition of vegetable matter.

In conversation with my friend Dr. Cloud, of Pennsylvania, he informed me, that his tenant is particularly careful to form conduits which lead from the stable for the purpose of saving the urine, which is thus conveyed to every part of the yard, and the horses and cattle kept dry and healthy. A ditch is frequently formed surrounding the barn yard, which draws off the superabundant fluids, and deposits all the moisture and redundancy into the excavated centre. This practice is considered of great consequence in Pennsylvania, and the urine of the animal, is no more permitted to escape, than the excrementitious matter, which would otherwise be of little value.

Stable or barn yard manure should not be carted out in the fall and left exposed in small heaps during the winter. The influence of cold, serves very well to wear out and decay the ruits of vegeta-

bles, and ploughing is highly recommended in the close of the autumnal season. But the vicissitudes of heat and cold, freezing and thawing, evaporation & the wind renders the manure partly inactive.

Either turn it under with the plough, or leave it in large heaps, covered over with sand, marl, mud, or some other dense medium to intercept the evaporations consequent upon the winter season.

Another material point in the economy of getting manure, is to confine the cattle to the barn yard, during the year. In addition to the saving of fencing, a commensurate utility will be experienced in the increase of manure; cattle require less feed when not permitted to range at large, and are much more easily kept fat. A sufficient degree of exercise can be practised in a commodious barn yard, and the stock kept much more healthy in one situation than by frequent changes. Grass cut in the field will well pay for the trouble of carting it to the yard—no unnecessary ground is trod upon; and all the products of the field can be most advantageously applied.

The practice of enclosing a farm in one fence is certainly an interesting idea in agricultural science. Any one who will take the pains to estimate the consequent benefit resulting from this plan, cannot fail to approve of it. What is a greater object with farmers than *rails*—and *manure?* By the present mode of farming, a number of fields are divided off, with the anticipation of future convenience;—Very little calculation is made of the expense of fencing as it ought to be done—and a bad fence is sure to "cost more than it will come to." Keep the stock in the barn yard, therefore, all the year round, and enlarge your dung hills—cut your grass and feed in the spring; make as much hay as you please in the summer; have but one fence, and that circumscribing the farm. You will soon have fatter cattle, richer ground, more money at interest, and not one half your farm invested in decayed fences—not saying any thing of the amount of soil rendered inactive by being covered with a fence. These rough hints are thrown out as they have originated in my theoretical speculations—I have no doubt of their competent satisfaction when applied to actual practice.

J. A. ELKINTON.

CORN.

The utility of corn stalks for manure, has been demonstrated upon scientific principles, to an extent I believe not generally apprehended. 1000 parts of dry wheat straw gave 43 parts of ashes; and 1000 parts of those ashes afforded 22.5 of soluble. 1000 parts of the stalks of Indian corn (*Zea mays*) gave 84 parts of ashes; and 1000 parts of those ashes afforded 72.56 of soluble matter.—*See Davy. p.* 105. Hence 100 pounds of stalks will afford more food to vegetables than 600 pounds of wheat straw. This is a matter of moment to the farmer who duly appreciates the importance of manure, and affords a strong inducement to extend the cultivation of this useful plant. Corn takes less from the soil and more from the atmosphere, in consequence of its large system of leaves, than wheat, and consequently it is less exhaust-

ing. Its average product is three times as great. It serves as food for all animals. Its ordinary price in market is about one half the price of wheat. Both now are about the same price.—Fed with unfermented manure, and planted on a clover lay, it is the most certain and profitable grain crop that is grown. On poor or wet ground, badly taken care of, no crop is less profitable. We have corn soils and corn districts, and soils and districts, that will not produce it to advantage. When we become wiser, every district will confine its culture to the products for which it is best adapted.—We shall hereafter have our wheat districts, our barley districts, our corn districts, and our grazing districts; between them mutually advantageous. Our great error consists in blending all branches of husbandry, when our soil and location are probably only well adapted to a single branch.

SALEM COUNTY AGRICULTURAL SOCIETY.

An Exhibition of the Salem County Agricultural Society will be held in Salem on Tuesday the sixteenth day of May next.—All descriptions of stock exhibited for premium must be brought one day previous to the meeting and shown to the Judge.

The following premiums are submitted to the Agriculturalists of Salem county by their Comittee.

1st. To that Agriculturalist whose farm exhibits a more progressive state of improvement than any other $10 00

2. To that tenant, whose farm is more improved by his exertions and industry, than any other tenanted farm 10 00

3. For the best Stud Colt, under three years old, warranted of the improved turf breed, and raised in this county 5 00

4. For the best filly, warranted of the improved turf breed and raised in this county 5 00

5. For the best Bull of any of the improved breeds 3 00

6. For the best Bull Calf, under two years old, and of any of the improved breeds 3 00

7. For the best Milch Cow, of the improved breed 5 00

8. For the two best Heifers, and best pair of Steers, designed for Working Oxen, (by the pair) 5 00

9. For the best full blooded young Buck (Merino) 3 00

10. For four of the best Merino Ewes, (Shearlings) 4 00

11. For the best young Buck of the Bakewell breed 3 00

12. For four of the best Bakewell Ewes, (Shearlings) 4 00

13. For four of the best Ewes, of the common or any other breed 3 00

14. For the best Boar 2 00

15. For the best Sow, with six or more pigs 3 00

16. For that labouring man, who being hired by the year, and who has lived more than two years upon the premises or in the family of a farmer, and can give satisfactory evidence that he has been strictly honest, faithful and sober during that time, *A Silver Medal.*

17. For that labouring woman, who being hired by the year, and who has lived more than two years in the family of a farmer, and can give satisfactory evidence, that she has been strictly honest, faithful and sober, during all that time, *A Silver Medal.*

The following are left for the Committee to act on as they think proper.

To the person who shall raise the greatest quantity of Wheat, Corn, Rye, Barley and Oats, from not less than six acres of land.

To the person who shall raise the greatest quantity of Flax or Hemp, on not less than two acres of land.

To the person who shall raise the greatest quantity of Potatoes, Turnips, or Mangel Wortsell, on not less than one acre of land.

For the largest quantity of Hops, raised on not less than one acre of land.

To the person who shall make the greatest quantity of Butter and Cheese on his farm in one season, *A Cream Jug.*

To the person who shall make the greatest quantity of Butter and Cheese from his farm in a season, reference being especially had to the number of cows which gave the milk,

Half dozen Silver Tea Spoons and Sugar Tongs.

For the invention of any approved instrument of Husbandry—or an improvement of any instrument of any one in present use.

For the best sample of Linen, Cotton, or Woollen Cloth, of not less than twenty yards, manufactured by one family.

For the best domestic Wine, the quantity made not to be less than ten gallons.

For the best method of restoring worn out land, either by rotation of crops, the application of manures, or the ploughing in of green crops.

HEDGE THOMPSON,
MORRIS HALL,
PAUL SCULL.

Persons in the adjoining counties having superior Stock of any kind are invited to bring it forward. Stabling will be provided for all that may attend.

JOEL FITHIAN, *Secretary.*

ADDRESS

Delivered before the Pennsylvania Agricultural Society, at their Third Annual Exhibition, October 20, 1825, by DR. WM. DARLINGTON.

Mr. President, and Gentlemen of the Pennsylvania Agricultural Society.

I should certainly have shrunk from the task of attempting an address to this respectable association, on the subject of their pursuits—a subject on which every member, probably, has more practical information than myself—but that I esteemed it an imperative duty to contribute my mite towards promoting the views of the Society, in any mode which they might be pleased to designate. I can only regret that they have not been more fortunate in their selection, on the present occasion. I will say however, that if an ardent zeal in the cause of the institution,—an honest pride in the

character of our intelligent farmers, quickened by a jealousy of every circumstance which can effect the interests or high standing of the Agricultural community,—and an earnest desire to see the cultivators of the soil, generally, as distinguished for their enlightened attainments in their profession, as they are for their patriotism and correct deportment as citizens,—if these attributes may conciliate your indulgence for the deficiencies and imperfections of the address, I feel that I may safely claim, for a few moments, your candid and favourable attention.

I shall not presume, at this time, to undertake a desertation on the practical details of husbandry, nor to edify you with precepts concerning the most approved systems of rural economy. These subjects have been discussed, with signal ability, by the gentlemen who have preceded me, at our former meetings; and will no doubt, be the theme of many instructive discourses, on future occasions. My purpose is, simply, to notice some of those considerations, which I conceive ought to stimulate our patriotic farmers to increased exertions for the acquisition and diffusion of useful knowledge; and thereby as a necessary consequence, to promote the interests, and enhance the dignity of the profession. It will not be denied, notwithstanding the advances of modern husbandry, that we have ample room for further improvement in the *practical operations* of the farm; and that we have much to learn relative to their *true theory*,—or, in other words, those laws, or principles of causation, which govern the processes connected with successful culture. That it is desirable to effect this improvement, and to acquire a knowledge of those principles in nature, of which we may advantageously avail ourselves in our labours, every rational mind will admit. To promote these objects, no mode seems more eligible than that which we have adopted, in the formation of this Society. By the agency of such institutions, detached facts, and the insulated experience of idividuals, may be brought together into a common fund, producing mutual and augmented benefit,—conflicting opinions may be compared and corrected; and the scattered rays of truth made to converge into a pencil of light, that will at once trace and illuminate the paths of genuine Agricultural philosophy. The importance of liberal associations, in promoting and disseminating useful knowledge, has long been understood by those who are devoted to science, and the arts. Our philosophical societies,—our academies of science,—and our mechanics institutes,—are striking illustrations of this fact: and it is gratifying to know that our intelligent farmers are beginning to perceive, and to appreciate the value of such institutions, in reference to their own pursuits. The benefits diffused by the laudable exertions of our elder sister, the Philadelphia Agricultural Society, are gratefully acknowledged, not only in our own State, but throughout the Union; and I am sanguine in the hope, that we shall successfully emulate her honorable career. I am confident that the intercourse of our distinguished farmers at our annual meetings, will not only be the means of improving the various kinds of stock, and promoting more correct views of rural economy,—but that it will also subdue those prejudices, which are entertained by many, in relation to

every thing *new*,—or with which they are unacquainted. It is a frequent, and I apprehend, a well founded observation, that while those engaged in the arts and manufactures, are prompt to avail themselves of every invention and device that will facilitate their labors, and advance their interests,—the cultivators of the soil are too apt to be jealous of innovations upon established practices; and are remarkable for the tardiness and reluctance with which they adopt, or countenance new improvements. This characteristic is unquestionably owing, in great measure, to their retired habits; and to the want of that liberal intercourse with each other, which meetings like this are so well calculated to promote. It is under such circumstances of privation, that prejudices get possession of the mind, and become extremely difficult to be eradicated. But it will be found that a proper culture, is as beneficial to the intellect, as to the farm; and that the prosperity, as well as the respectability, of the farmer, will ever be in a direct ratio with his intelligence. I never can believe that the pursuits of agriculture are incompatible with general knowledge, or scientific attainments; for, although it was intimated, in ancient times, that wisdom was inaccessible to him *who held the plough*, and *whose talk was of bullocks*, yet the passage was long since received as *apocryphal*, and the suggestion abundantly refuted by experience. *We* have seen and have profitted by, the wisdom of the holders of the plough. We have seen our practical agriculturists "sought for in public council"—we have seen them "sit on the judges' seat"—and so long as wisdom and patriotism shall be esteemed amongst us, our country will hold in grateful reverence, the memory of the Farmer of Mount Vernon.

It is, nevertheless, to be lamented that there should be those yet amongst us, who undervalue the aids which science proffers to the labours of agriculture; and who persist in degrading the profession to a mere blind routine of manual drudgery. The investigations of the chemist and the naturalist are denounced by such, as unprofitable speculation, idle theory, and *book farming*. It is curious to observe what a bugbear *theory* is, with many who plume themselves on being sagacious, practical farmers. No doubt there have been wild and extravagant notions indulged by those who were deficient in facts and knowledge—and what science has not had its absurd theories?—But a moments reflection will teach us that this is no argument against theory. Sound theory is nothing but a true explanation of the causes, and modes, by which effects are produced. There are certain laws which control and regulate every process in nature; and to comprehend those laws correctly, is to possess the true theory of the process. Is this an acquisition to be despised? Or will any one pretend that all theory can be discarded? On the contrary, it is certain, that there is no man—not even the most prejudiced, plodding disciple of empiricism, in any profession, who has not his theory, such as it is. It is impossible for a mind possessing intelligence enough to observe a succession of phenomena, or series of connected facts, not to form some theory, however imperfect, of the laws, or modes of causation; and I venture to

affirm, that the facts themselves will always be most carefully ascertained by those who seek to understand the principles which govern them. Few things are more abundant than *false facts*,—or assumptions purporting to be facts: and none are so prone to adopt, and be misled by them, as those who disdain to theorize, or investigate. If these views are correct, it becomes our interest, as it should be our pride and ambition, to apply them judiciously to the business of the farm. We should endeavour to qualify ourselves to observe with accuracy—to scrutinize facts, and make legitimate deductions. If those who have preceded us, have observed negligently, or reasoned incorrectly, and thereby advanced absurd theories,—let it be our province to rectify their mistakes. The explosion of an old error, is scarcely less valuable than the discovery of a new truth. It surely will be admitted, that there is a true solution for every phenomenon in nature; and if, as is alleged, the book farmers have led their bretheren astray by erroneous theories, let it be our business to detect the fallacies, and expose the errors of their works. Let those who delight to rail at the absurdities of agricultural writers, distinguish themselves by the more noble and profitable employment of promulgating sound doctrines. Let us all commence our labours by collecting a fund of carefully ascertained facts, in every department of our profession; and then proceed cautiously to the explanation.

A complete qualification for this, requires some preparation, it is true; but it is in the power of every man to make valuable contributions for that object. Every intelligent farmer has observed facts, and acquired information by experience, which, if communicated would throw light upon the processes of agriculture. To understand those processes intimately,—or, in other words, to be able to theorize correctly—would doubtless, as before observed, require some preliminary scientific attainments:—for agriculture is, in reality, a comprehensive system of natural science—embracing a knowedge of *mineralogy*, *chemistry*, *botany*, and *zoology*. A knowledge of these, however, sufficient for practical purposes, and to enable us to proceed understandingly, is by no means so difficult to acquire, as is generally supposed: and ought to constitute an indispensable part of the education of youth. With such qualifications,—which every man may possess, with a little industry,—the labors of the farm become a source of delightful instruction as well as of profit. Every process in the annual routine of husbandry is more or less connected with those auxiliary sciences; and thereby becomes a legitimate object of philosophical inquiry. If we would ascertain the true character and composition of the soil,—determine which of its constituent parts are superabundant,—and what earths require to be added, to ameliorate its quality,—we must call in the aid of *mineralogy*. A knowledge of this science is implied in every successful investigation of this important branch of agriculture: and the extent in which it is possessed will generally determine the degree of success with which the inquiry is prosecuted. It is a knowledge of which every man possesses more or less, although he may not be aware of it,—as Moliere's

Burgeois Gentilhomme had all his life conversed in *prose* without knowing it! Every farmer knows that an excess of clay may be corrected by the addition of sand—and that an undue proportion of sand requires the admixtion of aluminous earth, &c. to fit it for the successful culture of plants; and experience has taught us all, that calcarious earth, or lime, is a most important ingredient in the formation of a good soil. These circumstances, as already remarked, are connected with mineralogy; for he that can distinguish the various earths that enter into the composition of the soil, and determine their relative proportion, is something of a mineralogist; and is *so far* qualified to avail himself of the aids of that science in the prosecution of his labors. It is, then, apparent, that *a portion* of the science is indispensable to the agriculturist who would succeed in his pursuits. May we not safely infer, that an *additional portion* would enable us to carry our improvements to a greater extent —to augment the productiveness of our lands; and to add the pleasures of intelligence to the enjoyments of profit?

The interesting science of *chemistry*, so universally and intimately connected with the arts and manufactures, is not less important in the business of agriculture. It is, indeed, an indispensable auxiliary in the pursuit of mineralogical science; and necessarily enters into every investigation of the constitution, and qalities of the soil. By its aid, we learn the presence or the absence, of those ingredients which experience has shown to be injurious, or beneficial, to the growth of vegetables; and it enables us to correct, or counteract, such as have been found to be pernicious. The entire system of preparing manures, and applying them with the best effect,—the ascertaining of the comparative values of agricultural products, as food,—and, in short, the laws which control the affinities of matter, and regulate the various processes of the field, the farm yard, and the kitchen, are all legitimate objects of chemical science. How important, then, is it, that we should avail ourselves of the lights which it affords, and be enabled to conduct our operations upon rational, and intelligible principles, instead of groping our way, at random, in empirical darkness! To the labors of Sir Humphrey Davy we are indebted for a lucid and successful application of chemistry to the pursuits of agriculture. His happy genious has not only carried the torch of science into the workshops of art,—but has cheered, with its light, the dreary caverns of toil, in the bowels of the earth,—and extended its beneficent radiance to the operations of husbandry, which adorn its surface.

Among the accomplishments of the truly enlightened Agriculturalist, a knowledge of the rudiments, or fundamental principles of *Botanical* science, deservedly claims a place. By the aid of Botany, in the just and comprehensive meaning of the term, we not only learn to know, and to distinguish plants from each other,—but we become acquainted with all the habits, functions, and properties of vegetables,—all those circumstances which interest us in their culture,—their influence on surrounding objects,—and their utility to man whether as articles of food, raiment, or medicine. It furnishes us, in fact, with a key to the simple, yet admirable system

of order, which nature has observed in all her works—but more especially in the arrangement, or classification of living, organized beings. The elements of this science, which are within the reach of every person of common capacity—will instruct us in many truths which are important in the economy of the farm, and the garden; and will also rid our minds of some prejudices which have decended to us from the ages of darkness and credulity. They will teach us, that upon all created objects, endowed with organic life, Omnipotent Wisdom has impressed certain permanent distinctive characters, by which their individuality is preserved; and, consequently, that the strange conceits which still infest some of our brethren, relative to the *transmutation of plants*, are as unfounded in fact, as they are repugnant to reason. We shall learn, indeed, that *species* may be improved by culture—(for that is a very meterial object, with the judicious farmer,) and also, in some few instances, that those nearly allied to each other may commingle: but we shall find that the notion of a *generic*, or even of a *specific transformation*, in the botanical character of any plant, is so preposterous,—so completely at variance with the established laws of nature,—that its existence can only be accounted for by tracing it, through the obscure channel of tradition, to the unenlightened age in which it originated. The prevalence of prejudices such as this, is not merely injurious by leading the farmer to overlook the true mode in which pernicious, or unprofitable vegetables are propagated, but it exerts an unhappy influence on the mind—substituting credulous indolence for philosophical inquiry—and thereby retarding our progress in the career of imporvement.

Zoology, or that branch of science which treats of animated nature, is an useful and important acquisition to the Agriculturist who would be master of his profession: for his pursuits necessarily comprise a degree of knowledge, more or less extended, of each of the three great divisions of the material world—the mineral, the vegetable, and the animal kingdoms. Without dwelling on the value of our domestic animals, or the skill and attention requisite to procure an improved stock—a subject of immense interest to the farmer,—and in relation to which a distinguished member of this Society has offered an example of successful zeal, and liberal enterprize, as honorable to himself, as it has been advantageous to his country,—without, I say, enlarging upon this fruitful topic, it will be sufficient for my present purpose to advert to a single subdivision of the science, termed, *Entomology*,—or that branch of Zoology which treats of *insects*. A more intimate knowledge of the characters and habits of those destructive myriads, which invade every department of our labors, and often blight our fondest hopes, is exceedingly desirable: for it is only by such knowledge that we can successfully contend against their ravages. The obstacles presented by unfavorable soils, climate, and season, are but trifling impediments in the way of our prosperity, compared with the havoc committed by insects, in the various stages of their existence. Frequently, after devoting the greatest care and attention to their culture, we are doomed to see our choisest fruits, our most valua-

ble crops of grain, and, sometimes, even the herbage in our pastures, ruined and swept away by the devastations of those formidable invaders. Against such multitudinous foes it is vain and futile to wage a direct war. It is by a scientific acquaintance with their history, an intimate knowledge of their habits, that we are to check their multiplication, or avert the mischiefs which they perpetrate. Some signal instances of the benefits to be derived from this knowledge are recorded in the annals of science, and are familiar to every naturalist. We have, in some measure, availed ourselves of it in the process of agriculture. We have ascertained that certain modes of culture, certain seasons for ploughing and sowing, the introduction of certain varieties of grain, &c. will interfere with the propagation, and prevent some of the ravages, of those destructive enemies. But much remains yet to be known, to enable us to obviate, completely, those ruinous and vexatious evils: and whoever shall contribute towards the accomplishment of so desirable an object, will be entitled to the lasting gratitude of the agricultural community.*

If he who caused two blades of grass to grow where but one grew before, was esteemed superior to all the warriors and statesmen who had defended and adorned their country, what should be the honors awarded to him whose discoveries would enable us to guard our harvest fields from devastation, and secure the delicious fruits of our orchards, our vineyards and our gardens? Surely, the knowledge that could accomplish this, would be worthy of the most strenuous efforts to attain; and I am convinced it never can be fully attained, without the aid of those lights which are afforded by natural science. Hence it is, that I have ventured to invite your attention to subjects which have been too much neglected, (not to say despised, as being thought idle and unprofitable,) by a numerous portion of our farmers. Although they possess information, more or less extensive, in every branch to which I have adverted,—yet for the want of those aids afforded by the elementary principles, and the lucid method of scientific arrangement, their progress is difficult,—their theories, or deductions, are vague and unsatisfactory,—their experience is frequently unprofitable, both to themselves and to others,—and the success of their operations wholly and necessarily fortuitous.

A new era, however, is happily dawning upon us. Some of our most enterprizing and successful farmers, are distinguished by their acquirements in every branch of science which has relation to agriculture. They have demonstrated the important truth, that liberal attainments are not only compatible with practical farming, but that

* It is but justice here to state, that we are under great obligations to our fellow citizen, Mr. Thomas Say, of Philadelphia, for his elegant illustrations, and scientific researches in Entomology: as also for his patient and persevering industry with which he continues to prosecute his inquiries in that interesting department of Natural History. Mr. James Worth, of Bucks County, a highly intelligent member of this society, has likewise directed his attention to the subject; and has set an example of practical investigation into the habits of insects, with a view to counteract their mischiefs, which entitles him to our best thanks, and is worthy to be imitated by every enlightened farmer in our country.

they contribute essentially to elevate the profession to its legitimate rank in the scale of human pursuits. It is to such men, chiefly, that we are indebted for the Agricultural Associations, which have recently been formed in various parts of the United States, and from whose agency we may fairly hope for the most beneficial results. In aid of their labours, there have also appeared several Agricultural Journals diffusing light and knowledge throughout the land:—amongst which, it may be permitted to distinguish one, which has so honourably distinguished itself, by the zeal and ability with which it has advocated our best interests, under the appropriate title of *The American Farmer*.

Seeing, then, that our most intelligent and prosperous Agriculturists sustain, by their example, the positions which I have assumed, I trust their importance will be correctly appreciated by those whom I have the honor now to address: and that every allowance will be made for the cursory and imperfect manner in which my views have been presented. Entertaining, as I do, the highest veneration and respect for the character of the *Independent Farmer*,—my only object has been to show, that it was due to himself, and to his profession, to avail himself of all the lights which science can impart, and to keep pace with the rapid strides of general improvement, in this improving age. I consider it all important that our *American Agriculturists* should be duly informed in every department of useful knowledge—not merely that they may secure the prosperity, and sustain the dignity, of their immediate profession—but because I view an enlightened Yeomanry, as constituting the best hope of the Republic, and the surest guarantee for the duration of its freedom: For if ever the flame of liberty shall, unhappily, be extinguished in our country, there is nothing hazarded in the prediction, that the last scintillations of the celestial fire will be observed among the intelligent cultivators of the soil.

VERGENNES, (Vt.) AGRICULTURAL SOCIETY.

The annual meeting of this Society was holden on the 3d of January last.

The viewing committee on Agriculture, upon the examination of the crops presented to the society, reported, that Mr. William Wheeler had raised the greatest quantity of Potatoes on half an acre of ground; also, that Mr. Daniel Marsh obtained from one acre of land the greatest amount of Oats; and therefore, they are entitled to the premiums offered by the society for the same.

These kinds of produce, though inferior in general estimation to the great staple commodities of the country, were in reality a source of subsistence indispensable to the first permanent settlement of the State, and the potatoe still continues to be the stamina and luxury of living. Upon the first introduction of the potatoe into this country, the whims of prejudice almost refused this valuable root admission to our soil. Poisons existed in its succulent juices, and diseases were nourished by using it as food. The value of

other vegetables was arrayed against the introduction of RALEIGH's discovery and Ireland's living. A small store of five or ten bushels was a large supply for a farmer, who now considers himself but scantily provided with 500 or 1000 bushels. The turnip, to the almost entire exclusion of this dreadful exotic, was then the marrow of living; but fancy gave way to judgment, and necessity to comfort, and the potatoe flourished on the propriety of the change. The hills of Vermont are now literally covered with potatoe patches, which by estimation yield more than 5,000,000 bushels yearly, or about twenty to each inhabitant, and probably we shall soon see our farmers selling patatoes in the city of New York. During the last war this vegetable was used for distilling; and the liquor, for raw and domestic manufacture, was very pleasant. There was generally in the most populous towns, from two to ten distilleries in each, and the town of Danville had seventeen in operation at one time. To encourage and increase the cultivation of the potatoe, is doing a most worthy and profitable service to the State.

DISTEMPER IN DOGS.

Williamsburg, March 29, 1826.

DEAR SIR—I observe in your last number of the Farmer, that information is wanted on the cause and cure of the distemper in dogs; I know nothing of the cause; I have cured a dog that had the distemper very bad. I send you, below, the mode I practised with him. If you think it worth publishing you are at liberty to do so.

First give in some gravy, nine grains Ipecacuanha, in three days after give three grains of Calomel and five of Jalap; in three days after repeat this dose, and in ten days repeat the dose of Calomel and Jalap. Respectfully, yours,

RICHARD COKE.

TO OBTAIN GOOD TIMBER.

Bark the tree the year before it is cut down. By this means the alburnum is converted into wood.

It is the sap in the alburnum, or white wood, which causes timber rapidly to decay. The sap contains saccharine matter, acids and mucilage, which ferment with heat, and bring on a decomposition of the wood. By the process recommended, the moisture is exhausted without fermentation, and the pores of the alburnum contract and harden. Soaking boards and timber in water renders the sap thin, so that when taken out and exposed to the sun, it is more readily expelled. In the process of charring, the moisture is expelled: and not only this, but the coal (carbon) protects the timber from moisture, air, and heat, the great agents in the process of putrifaction. Charred wood is said to have been taken out of the ground at Constantinople, in a sound state, which had lain there several hundred years.

PLANTING POTATOES.

Potatoes should never be planted whole, whatever may be their size, as they all produce the same number of shoots, almost invariably five, which is too great a number to be together, in order to make a good crop—As the whole potatoe, however large, or however many eyes (or buds) it may have, never produces more than five shoots, which are all from the end adverse to the stem—care should be taken that they are cut longitudinally, which, whether halved or quartered, is likely to divide the productive buds among the several parts. One third of the stem end should first be cut off, which is without a bud, that will not produce a shoot, but is valuable for the table or stock, and of no service to the planted part. It is therefore a saving that ought never to be omitted.—Thus prepared, the potatoes should, if planted in rows, be from eight to ten inches apart; if in hills, three or four pieces in each. Great care should be observed not to have the furrows, or trenches for planting, deep. Hills, in which they are seldem planted below the surface of the earth generally produce the finest potatoes.

SALT.

It is pleasing as well as important, to notice the progress made in the manufacture of this interesting article of commerce, the use of which is almost indispensable to the comfort of every individual. The middle and western counties of Pennsylvania, having inexhaustible beds of coal for fuel. and incalculable quantities of salt water, within their bowels, will probably furnish the chief supply of this commodity, at an early day. On the Conemaugh, Kiskementas and Alleghany, there are now thirty eight salt works, and one of those works is competent to the manufacture of 1,200,000 bushels of salt in a year, and has actually made 750,000; while the celebrated Saline springs in New York, produced, in the same year, only 736,632. The price of salt in Pennsylvania, is 20 cents, at the works. When the canals and other projected improvements are completed, it is believed that the average price of salt, throughout the state, will be less to the consumer than *forty cents* per bushel, and which, compared with the present price, will save a sum to the people equal to 100,000 dollars per annum! Salt will soon cease to be imported, except in small quantities and at particular places. The Pennsylvania salt is of a superior quality, and, as above stated, *any quantity* of it may be made. *Niles.*

SHEEP IN OHIO.

The number of sheep owned in Jefferson county, Ohio, (says the Steubenville Gazette) is estimated at 25,000. The flock of Wm. R. Dickenson, of about 3,000 Merinos, is acknowledged to be the best in the United States. That of B. Wells, of about the same number, is little inferior; and is equal to some of the finest.—Another flock of 7 or 800, owned by John and Alexander M'Dow-

ell, having been created from the prime of the Dickenson flock, is fully equal, as far as their numbers go, to the latter. Mr. Dickenson's wool at the last shearing, produced him $ 5,000; in addition to which, he has sold $ 7,000 worth of sheep, without impairing his flock. Mr. Dickenson's success in the raising of sheep, is a matter of general gratification, inasmuch as amidst every prejudice and discouragement, he continued to improve his flock, until he has finally brought it to its present unrivalled perfection. He deserves the thanks of his country.

POTATOES.

Mr. Walker, of Fermoy, has successfully practised a new and extraordinary mode of cultivating potatoes. It is well known to farmers that potatoes in pits—the general mode of keeping them in this country, till they are wanted for use, throw out a great number of shoots in the spring. From some of these shoots, in the beginning of last April, Mr. Walker cut as many knots or joints as they afforded, and planted them in drills in his garden, as if they were cuttings of the potatoe itself, or skillanes, as they are provincially termed. The stalks from these joints appeared in due time, were of uncommon size and luxuriance, and preserved their verdure to a late period of the season. The crop was dug out a few days since, and was very productive. This was the second experiment of the kind which Mr. Walker has tried, and he is so well satisfied with the result, that he intends to cultivate an acre in the same manner next year; to the whole process of which he will invite the attention of the neighbouring farmers as publicly as possible.

FROM THE NEW ENGLAND FARMER.

COLTS.

"We often hear it lamented that our breed of horses is so bad. But I am convinced, that, as our colts are managed, if we had any other breed, we should soon make it appear as mean as our own, if not worse. The abusing of colts in the first winter, is the principal cause of their proving so bad. For our farmers seldom allow their weaned colts any food besides hay, and that is not always the best kind. So that they seldom fail being stinted in their growth, in the first winter, to such a degree that they never get the better of it. A colt that is foaled late, should not be weaned till February or March, and should have oats during the whole of the winter. In some countries they allow a young colt fifteen bushels. We need not grudge to feed them with meal, oats and bran, besides the best of clover hay—for they will pay for it in their growth. After the first winter they will need no extraordinary feeding till they are grown up. Were the above directions observed, we should soon see an improvement of our breed of horses. They would be capable of doing much greater service, and be likely to hold out to a greater age."

FIRE-PROOF WOOD.

A composition has been discovered by Dr. Fuchs, Member of the Academy of Science at Munich, whereby wood is rendered incombustible; the composition is made of granulated earth, which has been previously well washed in a salution of caustic alkali, and cleared from every heterogeneous matter; this mixture, which is not decomposed by either fire or water, being spread on the wood, forms a kind of vitreous coat, which is also proof against each of these opposing elements. The building committee of the royal theatre in that city, have made two public experiments on small buildings, six or eight feet long, and of a proportionate height; one covered with composition, the other left as usual,—the fire was kindled in each equally: that not covered with the composition was quickly consumed, the other remained perfect and entire. The cost of this process is trifling—only about 20d. per 100 square feet. The theatre has been submitted to the process, containing nearly 300,000 square feet. The late Earl Stanhope made some very successful experiments of the kind—he coated a building with sand and glue, which proved completely fire-proof.

THE ADVANTAGE OF FALLOW-CROPS OVER SUMMER-FALLOWS.

By James Spenny, of Monroe.

To Jesse Buel, Esq.

Dear Sir—In answer to your circular, I would observe, that I should not have presumed to furnish matter for a volume of the Memoirs of the Board, had it not been asserted, that "any facts, however simple, would be considered valuable."

I have carefully watched the progress of improvement in agriculture, in order to derive benefit from any system of cultivation, new and useful, which might be proposed. Although many improvements in the business of husbandry have been suggested, which would no doubt be of advantage to the farming interest, were they reduced to practice, yet I shall speak of but one which I consider the most prominent, and that deserving the greatest attention; and which, if generally introduced, would save to the farmers of this state, annually, many millions.—I mean the introduction of Fallow-Crops, and the abandonment of Summer-Fallows altogether, on green sward. The experience I had in the system, confirms my belief, that all spring crops, such as oats, peas, barley and potatoes, may be raised on green sward, well ploughed, either in the fall or spring, and rolled with a heavy roller, with less expense in labour, and double the nett profits, than on stubble land; that the expense of tending a corn crop, on ground of that description, and thus managed, would be less then than the expense of the summer fallowing; and that good or poor land would not be exhausted as much in growing most of the above crops, with the sod under, unmolested and unexposed, while rotting as it would be in receiving two or three ploughings, while in a partial

state of decomposition, in the heat of summer, exposed to the influence of the sun, rains and winds. The first experiment I made of this kind, was a crop of corn, on a stiff sward of spear grass, ploughed in the fall, and well harrowed in the spring, without rolling. My crop was 72 bushels to the acre, worth 50 cents per bushel—Nett profits, $23 30 per acre. The ground was well ploughed once next spring, and sowed to peas: crop, 32 bushels per acre, worth $1 per bushel—Nett profits, $25,10.—The peas were harvested early in September, and the ground well ploughed once, and sowed to wheat: crop, 31 bushels to the acre—Nett profits, $22,90 to the acre, Nett profits in three years, $71,30. I have this year raised corn on land adjoining, and of a similar soil, and sod, the soil is what farmers call a sandy loam, managed in the same way, save only the crop was but once hoed: (wet weather prevented:) crop, 100 bushels to the acre. No manure was used; and not so much labour in tending as stubble land would have required. In the same field, I sowed 60 roods of ground to flax, and harrowed it in well on the sod. The crop grew well, and was the best I have ever raised on any ground. It fell down and I pulled it while in blossom; after which I ploughed the ground once, and sowed turnips. The turnips are very fine, and promise a good crop.

FROM THE NEW ENGLAND FARMER.

Framingham, February 24, 1826.

Mr. Fessenden,

In conversing with an intelligent farmer a few days since on the subject of the flowing of sap from trees, I was surprised to learn that the *moon* was considered by him as an important agent in this operation of nature. He assured me that he had been in the habit of tapping trees for a number of years, and that he had invariably found the sap unwilling to run in the *old of the moon.* If this is consistent with experience, it certainly ought to be generally known —as perhaps our farmers have in some cases been discouraged from attending to this branch of domestic economy by bleeding their trees at an improper season of the moon, when least inclined to yield their sap. I should like extremely well, sir, to know your opinion on this subject, to which it will not at least be *unseasonable* to call the attention of your readers.

I have another question, sir, which you will allow me to propose to you relative to the subject of *sap vessels.* According to Mr. Knight's theory, examined with approbation by President Smith in his introduction to Physiological Botany, republished in Boston by Dr. Bigelow, the sap is carried from the root to the branches and leaves by a set of vessels ranged along the medulla or pith of the plant, which Mr. Knight calls the central vessels. Nothing is said directly by Dr. Smith concerning the existence of any other conveyance of the vegetable blood, and the idea of a circulating system is entirely rejected. In a note by Dr. Bigelow (to whose botanical labors in general we are so much indebted,) the practice of *girdling* trees is spoken of as exemplifying the truth of this theo-

ry, which to my mind affords evidence directly opposite. How can the removal of a circle of bark and alburnum, or outer wood, affect the interior central vessels, through which, according to Mr. K. and Dr. S. the sap is conveyed? Another set of vessels at least must be supposed connected with the bark and alburnum;—but even then the difficulty is not altogether removed, as the central vessels still exist, and might be supposed sufficient for the supply of sap and life to the plant. INVESTIGATOR.

Remarks by the Editor.—With regard to the moons influence on the flowing of sap, we must confess our ignorance, and till better informed, we shall doubt whether that planet has any agency in that operation. We have, however, frequently observed that the sap from the sugar maple flows with most freedom when a frosty night is succeeded by a fair day, either calm or the wind northerly or westerly. It is well known to all makers of maple sugar, that when the nights are at a temperature above the freezing point, the days succeeding yield little or no juice from the maple. And we have known maple sap flow freely for an hour or two in the morning; and a slight breeze springing up from the south east, or any point south of north east and south west, would stop the flux of the sap almost instantaneously. We do not pretend to understand the philosophy of this, but so it is. We took however no note of the moon, not suspecting that planet of any interference in the case.—We do not say that the moon has not the influence alleged, but we must have better evidence before we can affirm it as a fact established.

While on the subject of the moon's influence on the flux of maple sap, it may not be amiss to take notice of some other alleged interferences of that planet with the process of vegetation. Mr. Louden, in his Encyclopedia of Gardening, published in London, 1824, says "Meagre, Mascal, Worlidge, and the authors who preceded them, regulate the performance of horticultural operations by the age of the moon. Turnips or onions, according to these authors, sown when the moon is full, will not bulb, but send out flower stalks; and fruit trees, planted or grafted at that season, will have their period of grafting greatly retarded. A weak tree is to be pruned in the increase and a strong tree in the wane of the moon. Quintinye seems to have been the first to oppose this doctrine in France, and through Evelyn's translation in his *Complete Gardener*, he seems to have overturned it also in England. "I solemnly declare," he says, "that after a diligent observation of the moon's changes for thirty years together and an enquiry whether they had any influence in gardening, the affirmative of which has been so long established among us, I perceive it was no weightier than old wives' tales, and that it had been advanced by unexperienced gardeners. I have therefore followed what appeared more reasonable, and rejected what was otherwise: in short, graft in what time of the moon you please, if your grafts be good, and grafted on a proper stock; provided you do it like an artist, you will be sure to succeed. In the same manner sow what sorts of grain you please in any quarter of the moon, I'll answer

for your success, the first and last days of the moon being equally favorable."

With regard to "the subject of sap vessels," we shall give a brief exposition of what we believe to be the modern theory of the circulation of fluids in vegetables. The sap vessels pervade the alburnum or sap wood. The nutritious fluids imbibed from the soil by the radical fibres, after, perhaps undergoing some change equivalent to digestion in the body of the root, ascending the state of sap along the stem or trunk into the leaves, by means of those sap vessels.—In the leaves the sap is exposed to the action of heat, light and air. Much of the watery part of its composition evaporates by perspiration from the leaves. A portion, however, of the sap or blood of the vegetable descends along the inner layer of the bark. That part which returns from the leaf is impregnated with carbon, (coaly or woody matter) attracted from the atmosphere, and yields its carbon to the body of the plant, thus forming a new and outside layer to the alburnum or sap wood.

The peculiar secretions, by which one plant differs in taste, smell and medical qualities from another, are first involved in the leaves, though, perhaps, perfected in the bark and wood. There originate the acid or alkaline, mucilaginous or resinous, acrid or aromatic, saccharine or bitter principles. A portion of the sap is carried to the flower or fruits, and undergoes no less remarkable changes, for purposes destined to be accomplished there; but is not returned from thence, as from the leaves, in order to answer any further end.

Writers are not agreed respecting the cause of the ascent of sap. Some suppose that the vessels in which it rises are a series of little pumps furnished with valves. The air enclosed in these, being rarified by heat, escapes in part, and the sap, or fluid immediately below is introduced by the pressure of the atmosphere, as in what is called a suction pump. Others attribute this effect to what they call the principle of vitality in the vegetable, &c. &c. The circulation of sap, according to the above theory is said to have been ascertained by experiments made by Dr. Darwin, Mr. Knight and others, who by introducing twigs of various vegetables into water, coloured with logwood, madder, &c. were able to trace the motions of the fluid, and to deduce therefrom something like principles we have attempted to explain. In short, according to these and other modern writers on the physiology of vegetation, all the sap of vegetables *ascends along the outside layer of the wood;* and that part of said sap which is not wrought into leaves, flowers or fruit, or is not evaporated in the perspiration of the leaves, &c. *descends along the inside layer of the bark,* and by its secretions forms a new layer of alburnum. If you stop up or destroy the channels by which it descends, by girdling or other means, you destroy the vegetable. We have not read Smith's Botany, quoted by "Investigator," but mean to read it, and if we find any thing new on this abstruce subject, we may, perhaps, give some further remarks on what we are somewhat tempted to call the *metaphysics of vegetation.*

DEEP PLOUGHING.

During the continuance of dry weather, when so much injury is anticipated to Indian corn and other productions of our fields, it is strongly recommended to make a liberal use of the plough, where ever the space between the different *hills* or rows will admit of its passing. The following extract from Cobbett, is recommended by a correspondent in the New York Mercantile Advertiser—we give it to our readers, many of whom are immediately concerned in the cultivation of grain, and *all* in its ultimate production :

" To return from this digression, I am afraid of *no bad seasons*. The *drought*, which is the great enemy to be dreaded in this country, I am quite prepared for. Give me ground that I can plough ten or twelve inches deep, and give me Indian corn space to plough in, and no Sun can burn me up. I have mentioned Mr. Curwen's experiment before ; or, rather Tud's—for, he it is, who made all the discoveries of this kind. Let any man just try, leave half a rod of ground *undug* from the month of May to that of October; and another half rod let him dig and break fine every ten or fifteen days. Then, whenever there has been fifteen or twenty days of scorching Sun, let him go and dig a hole in each. If he does not find the hard ground *dry as dust*, and the other *moist*, then let him say that I know nothing about these matters. So erroneous is the common notion, that ploughing in dry weather lets in the drought! —" Of course, proceeding upon this fact, which I state as the result of numerous experiments, I should, if visited with long drought, give one or two additional ploughings between the crops when growing.—That is all ; and, with this in Long Island I defy all droughts. But why need I insist upon this effect of ploughing in dry weather? Why need I insist on it in an Indian corn country ? Who has not seen fields of Indian corn looking to-day yellow and sickly, and, in four days after (the weather being dry all the while) looking green and flourishing ; and this wonderful effect produced merely by the plough ?—Why, then, should not the same effect always proceed from the some cause? The deeper you plough the greater the effect, however ; for there is a greater body of earth to exhale from, and to receive back the tribute of the atmosphere. Mr. Curwin tells us of a piece of Cattle Cabbage. In a very dry time in July, they looked so yellow and blue, that he almost despaired of them. He sent in his ploughs ; and a gentleman who had seen them when the ploughs went in on Monday, could scarcely believe his eyes when he saw them on the next Saturday, though it had continued dry all the week.

If the above remarks are to be relied upon, and we believe they are well founded, Cobbett *may* have done more good with a single hint on agriculture, than with all his scribbling upon politics, grammer, and religion ; we commend the piece to the especial notice of our country readers.

MANURES.

The contents of the barn-yard, and the excrements of cattle, are the principle sources of manure of the vegetable kind ; and of these

it is necessary to understand particularly, as well the qualities of the different sorts, as of their most advantageous application to soils. The sorts of dung or excrement to be noticed, are those of horses, neat cattle, sheep, and swine. The dung of swine is most valuable where properly applied; that of the sheep is the next; that of cows ranks in the third degree, and that of horses in the fourth. The dung of the latter, if suffered to lie in a heap till it becomes thoroughly heated, assumes a whitish, or mouldy colour, and is then of but little value. It is of a warm nature, and is best adapted for being well buried in moist and clayey soils; cow dung, on the contrary, is most suitable for dry soils; sheep dung answers best on the soils for which that of horses is best suited, but is very valuable for almost any soil. Hog dung should only be applied to dry arable lands, and is most powerful in those of a sandy or gravelly nature. Dung of all sorts, loses much of its valuable qualities by exposure to frequent rains, particularly when lying at but little depth over a considerable surface. Its good qualities are best preserved by lying in large heaps, and if under cover so much the better. The stercorary is the most effectual method for preserving barn dung, and its believed that every farmer will find his money well expended in the erection of this receptacle for the contents of that part of his barn-yard, which is not used in the spring.

The stercorary may serve for a sheep-fold, during winter, and will thus answer a two fold purpose. It may be, for instance, 40 feet in length, 16 in breadth, and of suitable heighth. The floor is to be made of a layer of clay, with the surface smoothly paved with small stones, and highest in the middle, so that the juices of the dung may run off the sides where a gutter receives this liquid, and carries it into a reservoir, sunk at one end, into which a pump is to be fixed to raise the liquid and throw it back over the heap. The floor, gutter, and reservoir are on a plan similar to those of a cider press. The liquid that runs from the heap is the most valuable part, and should never be lost: This plan is therefore calculated to preserve it; and for the purpose of absorbing the whole of it, any dry vegetable matter, or rich earth, may be laid over the heap, and this liquid thrown on that, which will serve to convert the whole into good manure. The juices and the soluble and gascous parts of the excrements of cattle, together with the stale, are what principally affords nutriment for growing plants; and every means by which these can be saved, by their being absorbed in other substances, of rich earthy or vegetable matter, would seem to be well worthy of attention. We will next designate what is usually considered the methods most proper for the application of dung.

Where lands are in grasses of the fibrous rooted kinds, it is the generally received opinion of the best cultivators, that barn dung as well as manure of every other kind, should be applied as a top dressing, that is, by spreading it on the surface; but that for tap rooted grasses, or those whose roots extend deeply, as well as for all grain and root crops, this manure should be buried in the soil, at such depths as are best suited to the nature of the roots of the plants to be cultivated. The operation of barn dung, and of all vegetable

and animal substances used in manure, seems to be this: If laid at a certain depth beneath the surface of the soil, in the progress of their decomposition their soluble parts pass into the form of gas, or vapor, and of course rise to the surface, and in their ascent are more or less absorbed by the roots of the plants: on the contrary, if these manures be laid on the surface, these soluble parts, in the progress of decomposition, never become aeriform, but are washed downwards, in their liquid state where they are in like manner absorbed by the roots of the plants. This is probably as correct an explanation as can be given of the effect of these manures. It is well known, that ground long used as a grave yard, becomes very fertile, notwithstanding the substances which are the cause of such fertility, are laid at a very great depth.

It has been held by some English writers that barn dung should be well rotted previous to its application as a manure; but this opinion is rejected by Sir Humphrey Davy, one of the most scientific agriculturalists of Great Britain, and also by Arthur Young, Esq. Mr. Davy contends that this manure may in most instances be as well applied fresh as any other way, by its being laid at a proper depth beneath the surface, and that in scarcely any instance is it advisable that it should undergo more than the first stage of decomposition before it is used. When well rotted it is, however, more efficacious for a single crop, but its use is of much shorter duration. It seems, also, to be generally agreed that using this manure for drill crops, burying it at a good depth, and raising the plants over the dung thus buried, is the best possible way in which it can be used. We lately saw an account published of upwards of 100 bushels of Indian corn to the acre being raised by this mode of culture. The success of Mr. Cobbett, and others, in raising great crops of Ruta Baga by this method of using this manure, seems to demonstrate its utility, if evidence was wanting further than what appears in English publications on the subject.

ON THE MANAGEMENT OF HORSES—

By an experienced sportsman.

I shall begin by making known the most useful medicine for horses that I am acquainted with. I have constantly used it for above thirty years, and, may in truth say, I have given it one hundred times. I shall relate how I first proved its surprising efficacy. About thirty years ago, when I was confederate on the turf with my friend Mr. Robert Pigott, when his celebrated horse SHARK was at his best.—Mr. Pigott trusting the whole conduct of his stables to me, I came some days before the meetings, to try his horses and my own, and to see his horse Shark take his last sweat, before he ran with Lord Abingdon's Leviathan, for a very large sum of money we both had depending on that race.

Shark went through his sweat, at the dawn of day, very well, and to my perfect satisfaction, after which he was taken home, fed and locked up till twelve o'clock at noon. At twelve o'clock, when

the trainer, Thomas Price, and myself came into his stable, we found all his legs swelled, his hind legs very much indeed, quite up to the hocks, and his fore legs considerably. I was much alarmed, and told Tom Price to keep the door locked, that none of the boys might see the condition he was in, and that I would send a servant to Mr. Pigott, to inform him, that he might get his money off.

Price said, 'Sir, you are alarmed at that which is of no consequence whatever. Horses' legs, after sweating, frequently fly, and, I assure you, I have had many horses more swelled than Shark is. Provided his legs are not fine by to-morrow night, I will suffer death; and, to prove to you my sincerity, I will, if you allow me, stand for every shilling you have on the race; and I know you have a very large sum depending. I will give him something, which, by to-morrow night; shall make his legs as fine as they were yesterday.' 'You shall give him nothing,' said I, 'unless you tell me what the medicine is composed of.' 'It is the most simple and innocent of medicines, sir: I will write it down for you, and you shall go yourself to the apothecary's and have it made up, and see it given to him yourself. It is this: one pound of nitre, and half a pound of sulphur, (flower of brimstone) mixed up into a mass with molassess.' For Shark I had it made up with honey, being so valuable a horse; but I have never given it to any other horse, except made up with molasses—and I look both on the honey and molasses, as the only vehicles to give the nitre and sulphur. Before one o'clock at noon, I gave Shark a ball of it, as large a good sized hen's egg; at night another; the next morning, another; and, in the evening, about five o'clock, another. At night, when we shut the stable up, we could scarcely perceive that his legs were at all swelled; and, at day break the next morning, his legs were as fine as they ever had been. He had two balls given him the first two days, but only one every day after, until the day he started for the match, which was seven days after he had taken his sweat. His exercise was stopped only two days, during which time he was only walked with, which, I am convinced, benefited him, for he was a delicate horse. All running horses and hunters, must be well purged; if they are not, they will never stand their work without *flying* to *pieces*, as the grooms vulgarly call it.

It is not necessary to purge draft horses, or hackneys. I have not physicked one for above thirty years. You need only give them one ball, as big as a hen's egg, every day, until they have taken the whole mass which I have prescribed. Give this in the spring; and, provided you find their legs swelled again, from work, or they look unkind in their coats, give it them again,—for you need never stop their work.

Farmers who are fond of having their cart horses look well in their coats, when they go to market, are in the habit of giving antimony and other noxious drugs to their horses; this medicine will answer every purpose, and is most innocent and simple, and very efficacious.

Ignorant John Groom, and the farrier, equally ignorant, whenever a horse looks unkind in his coat, and most particularly when

his legs in the least swell, give him for two or three successive days, a strong diuretic ball; which makes the horse stale profusely, weakens him, and is detrimental to his constitution. Diuretic balls are composed of rosin, juniper berries, and other violent, strong diuretics, violent in their operations, and noxious to the animal. The medicine I recommend is perpectly innocent, and so mild and gentle in its operation, that it acts insensibly on him, and is not to be perceived, but by the cure.

The first horse, after Shark, I gave this medicine to, was a most valuable brown horse, a hunter, presented to me by my worthy and old friend, Lord Egmont. The man who sold him to my friend, had deceived him, by telling him, that the horse had been properly physicked before the season. I had not rode him much above a fortnight, ere he flew all to pieces.

My groom came in one morning, and desired I would look at my horse. I found his coat extremely rough, staring, and unkind to the feel, and his legs very much swelled. I gave him the first day, two balls; the second day two balls; and every day after only one ball, until he had taken the whole mass. I hunted him on the fifth day, his legs being nearly as fine as they had been, and his coat every day looking better and kinder to the feel. Since that time I have given it to some hundred of horses.

I gave this receipt to a horse dealer in London, an old acquaintance of mine, who was accustomed, whenever he had purchased a lot of horses in the country, when any of them flew at the heels, their legs swelled, or looked unkind in their coats, to put them under a regular course of physic; by which method he lost the sale of his horses for six weeks. He assured me that, ever since I gave him my receipt, his horses have, in ten days, been fit to show to any gentleman.

I do not assert that this medicine will cure a confirmed grease in horses' heels, but it will cure an insipient disorder. Be sure never to apply any grease or ointment to the horses' heels, nothing but a turnip poultice. If the grease be obstinate, nothing but mercury will cure him, thus administered: give the horse two drachms of Calomel over night, and the next morning a common Aloetic purge. This must be repeated three times, stopping one or two days between each dose; after which give him the nitre and sulphur balls. This process will cleanse him thoroughly.

When horses come in from hunting and perfectly empty in the stomach, when you give them a double feed of corn, before they have eaten one half, you sometimes will observe them leave off feeding for a time, turn their heads back and look at their flanks; sometimes they will even lie down for a minute or two, then get up and finish their corn. Wise John Groom says directly, to a master as wise as himself, 'Sir, your honour's horse has got the gripes; I will give him a comfortable drink, which will soon relieve him.' John Groom might just as well rub the horse's, or his own shin with a brickbat. This proceeds from the horse having worms. The worms, as hungry as the horse, begin to feed; and by moving about in the body of the horse, make the horse, for a time sick.

Two drachms of Calomel, given over night, tying his head up to the rack, so that he cannot eat any thing, and half a dose of common aloetic physic the next morning, three times repeated, will kill the worms, and bring them from the horse.

FROM THE NATIONAL JOURNAL.

ON THE CHOICE OF GRAPES FOR CULTIVATION.

Numerous attempts have been made by Vine Companies to introduce this valuable branch of agriculture into our country. It is not my intention to point out all the causes which concurred to defeat these patriotic enterprises. But, doubtless, an erroneous choice of grapes was among the most effectual. I believe that, in every instance, the attempt was made by the introduction of foreign vines, not adapted to our soil and climate. It is a fact well known to all who have taken the pains to make themselves at all acquainted with the subject, that the vine, when transplanted from one country to another, always changes its character; and, if it succeeds at all, makes a totally different wine, and requires, also, a treatment totally different, as well in making the wine, as in the cultivation. Hence, it need not surprise us, if former attempts, made with foreign vines, and managed by foreign cultivators, proved unsuccessful. It must now, I think, be admitted, that if the early experiments had been made upon grapes inured to the climate, and with the kind of culture suited to our own country, they would not have been unsuccessful. This seems to be fully established by recent experience; and hence I would advise all who undertake the culture of the vine, to direct their attention to our *native vines*, and of preference to such as experience shows, will flourish and ripen in their own immediate vicinity. Upon this system, there is not a State in the Union which could not have a supply of wine for its own consumption, and even a surplus for exportation.

It will be easily conceived, that from the little attention given to our native grapes, heretofore, it would not be in my power, nor in that of any other person, to describe the different kinds which may be used for making wine. Hence, I shall confine myself in the sequel of this number, to a description of those which I have in my vineyard, and which have, therefore, been the subjects of my observation.

Of these, the sorts of grapes proper for making wine are the following:

No. 1. *Blands Madeira*—Is a very good grape, either for the table, or making wine. It is of a good size, with moderate sized clusters, on which the berries hang loosely; in some places they are of an amber colour—in others of a pale red or brick colour: with me they are purple, with a bloom on them. They ripen from the 20th of September, to the middle of October, according to the season.

2. *Catawba*—This is a very large and beautiful grape, with good sized clusters. Where I first got them they were a beautiful black co-

lour, and a very good grape for the table. With me, they are of a dark purple, with a beautiful bloom on them, and have somewhat of a musky flavour. They make a delicious wine, that suits all palates. I could not trace from whence they were originally brought; but the late Mr. Scholl, at Clarksburgh, Montgomery county, (Md.) called them the Catawba; from which circumstance, I presume, they came from North Carolina. J. Johnston, Esq. of Frederick county, (Md.) has them also, and from whom I got cuttings. They are exactly the same kind I got from Mrs. Scholl; and, although they have changed their colour and flavour with me, I think if they are planted on a slaty soil, such as I got them from, that they will resume their original flavour and appearance; but I am very certain that mine will make the best wine. These are the grapes I called the Tokay—owing to a foreign gentleman, who said he was sure they were the true Tokay, such as he had seen growing in Hungary; but, from the general appearance of the vine, &c. I am very certain that they are indigenous to our country.

3. *Schuylkill Muscadella*—This grape, as I was informed by the late Mr. Bartram, of Kingsessing, near Philadelphia, was found on or near Schuylkill river, by a Mr. Alexander, who was gardener to one of the Penns, who was governor of Pennsylvania, before the revolution; and he thought it so superior to all other fox-grapes, that he introduced it into Mr. Penn's garden; from whence it made its way, by the name of Alexander's grape; and also got it by the name of the English fox-grape, when I was collecting cuttings for my Vineyard. Of this, I have made a very fine wine. It is of a deep purple, and has a pulp.

Quere—Is not this the grape Wm. Penn makes mention of, in his letter to the Free Society of Traders, dated the 16th of August 1683? "The great red grape, (now ripe) called by ignorance the *fox-grape*, because of the relish it hath with unskilful palates, is in itself an extraordinary grape; and, by art, doubtless may be cultivated to an excellent wine—if not so sweat, little inferior to Frontinac."

4. *Clifton's Constantia*—This grape, as the late William Clifton, of Southwark, Philadelphia, informed me, came up by chance in his garden, and ran up two cherry trees; from whence a Mrs. L. got it, and sent it over the country, by the name of Cape of Good Hope, or Constantia grape. It is a very tolerable grape for the table, and makes a good wine. It is a thick skinned grape, with a pulp in it, without much flavour; but when it is perfectly ripe, it is very sweet. It is of a deep purple colour.

5. *Worthington*—This was found near Annapolis, Maryland. It is a black grape, not so large as a fox grape, with a thick skin, ripens later than the fox grape, and when perfectly ripe, is tolerably sweet. There is a considerable austerity in the wine of this grape, but it mixes well with the Schuylkill and Constantia grape wine; and rather improves both.

6. The *Lufborough Grape*—Is an uncommonly large fox grape, which I found in this District, on Mr. Lufborough's land. It makes a very high coloured rich wine, and finely flavoured. Foreign gen-

tlemen generally call it delicious. The fruit is of a deep purple colour, very sweet, with some of that peculiar tang that fox grapes generally have. These six kinds are all great bearers, and generally make good wines, and sometimes excellent; and when we are able to make it in large quantities, and ferment it in large vats, I have no doubt but that wines will be made in this country superior to most foreign wines.

These six varieties I particularly recommend to make wine of. The latter four varieties I have never known to fail, and the other two very seldom; and never, where they are properly pruned, do they produce less than half a crop, and that is but once in from six to eight years. I am speaking from my own experience.

I have several other varieties of grapes, but have not yet had them in sufficient quantities to make wine of.

To make cheap beautiful green paint.

The cost of this paint is less than one fourth of oil colour, and the beauty far superior. Take 4 lbs. of Roman vitriol, and pour on it a tea-kettle full of boiling water; when dissolved, add 2 lbs. of pearl ash, and stir the mixture well with a stick, until the effervescence cease: then add a quarter of a pound of pulverised yellow arsenic, and stir the whole together. Lay it on with a paint brush, and if the wall has not been painted before, two or even three coats, will be requisite. To paint a common sized room of this colour will not cost more than five or six dollars. If a pea-green is required, put in less, and if an apple-green, more of the yellow arsenic.

TO PRESERVE BACON.

A writer recommends the following method as effectual in preserving bacon and smoked beef from insects. Make a lye of wood ashes, and boil it till very strong. Dip each piece of the meat in it, let it dry, hang it in a smoke-house, and no insect will injure it. The taste of the lye will not be perceived, even on the outside.

TO DRY SALT BEEF AND PORK.

Lay the meat on a table, or in a tub with a double bottom, that the brine may drain off as fast as it forms, rub the salt well in, and be careful to apply it to every niche; afterwards put it into either of the above utensils, when it must be frequently turned, after the brine has ceased running, it must be quite buried in salt, and kept closely packed. Meat which has had the bones taken out is the best for salting. In some places, the salted meat is pressed by heavy weights or a screw, to extract the moisture sooner.

SUBSTITUTE FOR YEAST.

Boil one pound of good flour, a quarter of a pound of brown sugar, and a little salt, in two gallon of water for one hour; when milk-warm bottle it and cork it close; it will be fit for use in twenty-four hours. One pint of this will make 18 lbs. of bread.

FROM THE AMERICAN FARMER.

HORSES, CATTLE, AND SHEEP.

Comparative estimates of capital employed in rearing horses, cattle, and sheep in West Pennsylvania.

Washington, (Penn.) September 17, 1825.

The following estimates of profits on the various departments of husbandry, although not precisely in their present shape, were made for the use of a young friend about commencing the world as a farmer. They are the result of the most careful investigation; and where the slightest doubt existed in my own mind, I availed myself of the judgment of the most judicious farmers in my neighborhood.

To persons residing in the vicinity of large cities, or in districts of country where produce commands high prices, and, of course, lands sell or rent in proportion, the estimates of keeping the different kinds of stock will appear too low; but I can assure such that the prices set down are the very highest demanded by our best farmers. I will just state that I have, at this time, near 300 sheep, kept in the best manner at 87 1-2 cents each, per annum.

Should you think these estimates calculated to add to the stock of useful information so widely disseminated by the American Farmer, they are at your service. *B.*

Estimate on horses.

We will suppose 12 brood mates to cost - - -	$ 1,200
Service of a horse for do. - - - - - -	100
In order to raise good colts, we loose the use of the mares for two years. We must, therefore, charge the keeping of 12 mares at 15 dollars each, per annum - - - -	360
From 12 mares we may calculate to raise 9 colts; to keep these the first winter will cost 3 dollars each - - -	27
Their keeping the 2d year, at 10 dollars per head - -	90
Do. 3d year, at 12 dollars do. - -	108
The fourth year they will require a great deal of care and attention, and may be set down at 20 dollars each, - -	180
	2065
At the end of the first two years we may estimate the mares at 1100 dollars; this sum must be deducted from the expenses, - - - - - - - - -	1100
	$ 965

Some allowance ought perhaps to be made for the use of the mares that do not breed.

Nine good colts, raised with care from such mares as could be had for 100 dolls. each, and a first rate horse, will average, at 4 years old, 125 dollars,	1125

Deduct expenses as above,	925
	160
Deduct from this the interest for two years, on 1200 dollars paid for the mares,	144
Profit,	$ 16

This will appear but a poor compensation for the care and attention of four years; and when we make a proper allowance for losses by accident, &c. the balance will be the other way. If these estimates be correct, it follows, that going extensively into the business of raising horses, will not turn out to good account. However, it is but fair to remark, that one or two good colts may be raised on a good farm, where mixed husbandry is carried on, and hardly be felt. And it is a practice but too common to make the breeding mare do almost as much work as any horse on the farm; in this way the expense is lowered, but the value of the colt is also proportionably reduced.

Estimate on cattle.

A good cow will raise a calf, and pay for her keeping besides; so that it will not be fair to make any charge for their keeping until they are six months old. We will take twelve as our number, and set down their keeping for the 1st winter, at 3 dollars each	$ 36
Second year, pasturing and wintering at 6 dolls.	72
Third year, pasturing and wintering at 8 dollars,	96
Fourth do. do. do. at 8 dolls.	96
And 360 bushels of corn, for stall feeding at 20 cts. per bushel,	72
Entire cost, not reckoning labour or risk,	372
These, if good cattle and well taken care of, will average, at four years old 8 cwt. making in all 96 cwt. which, with us, is now worth 4 dollars per cwt.	384
Profit,	$ 12

Here again it would appear that raising cattle is an unprofitable branch of husbandry.

In these calculations we take it for granted, that we pasture in enclosed fields during summer, and feed with hay in the winter. However, we resort to various expedients to reduce the expense, such as feeding with straw in the winter, and suffering the cattle to run in the woods during the summer. Some send their young stock to the mountains for summer pasture, which costs but little. Many of our best farmers pay but little attention to raising stock, but make a handsome profit by purchasing from the inhabitants of new and thin settlements, and fattening on clover pasture and stall feeding. This, when judiciously managed, generally repays handsomely. It has also this advantage, that we bring all the bulky and unsaleable produce, consumed by these cattle, into a small compass,

and a state to command cash. It is also much better to feed as much as possible of your produce on your farm. Although you do not at first appear to have so large a profit, you are eventually compensated by the abundant supply of manure with which you are furnished.

It ought here to be noticed that nine tenths of our work is done by the owners of the soil, and their hardy sons, and although the profits be small, whatever they are is clear gain.

In the above estimate I did not consider it necessary to set down in detail, the quantity and value of every article consumed by the horses and cattle. The sheep estimate will supply this omission, as it shows the value of such articles.

Estimate of Sheep.

Suppose we purchase 100 full bred ewes at $ 10 each,	$ 1000 00
Twenty five acres of pasture, which is sufficient, can be had at 1 dollar per acre,	25 00
Six tons of hay, at 4 dolls. per ton	24 00
One hundred bushels of oats, at 12½ cents per bushel	12 50
A man can easily attend to 500 head and do considerable work during the summer season besides. We will, however, allow *one fourth* of a man's time, $ 150	37 50
Shearing, salt, &c. &c.	6 00
	$ 1105 00
The fleeces of the above, if good, will average 2 dolls. each	200 00
From 100 ewes, properly kept, we will raise 75 lambs.	
These, at six month old, are now worth 7 dolls. each	525 00
Stock of old ewes,	1000 00
	1725 00
Deduct expenses and cost, as above,	1100 00
	625 00
Deduct 20 per cent. for interest, losses, &c.	125 00
Gain, first year	500 00

Although the profit appears large, it has been more than realized by every one amongst us, who had the fortune to possess a good flock of sheep, and took proper care of them. It would be altogether wild to calculate on the continuance of this state of things. The disproportion of sheep husbandry and every other kind is too great to last. Many of our farmers who heretofore scouted Merino sheep, are now going into the business with spirit; this will have a tendency to equalize. But let the best use be made of our present stock of fine wooled sheep, and it must be several years before the business can de reduced as low as the other branches of farming are now with us.

TUMORS.

Mr. Bartlet directs, that when these appear on the poll, withers,

Deduct expenses as above,	925
	160
Deduct from this the interest for two years, on 1200 dollars paid for the mares, - - - - - - - -	144
Profit, - - - - - - - - -	$ 16

This will appear but a poor compensation for the care and attention of four years; and when we make a proper allowance for losses by accident, &c. the balance will be the other way. If these estimates be correct, it follows, that going extensively into the business of raising horses, will not turn out to good account. However, it is but fair to remark, that one or two good colts may be raised on a good farm, where mixed husbandry is carried on, and hardly be felt. And it is a practice but too common to make the breeding mare do almost as much work as any horse on the farm; in this way the expense is lowered, but the value of the colt is also proportionably reduced.

Estimate on cattle.

A good cow will raise a calf, and pay for her keeping besides; so that it will not be fair to make any charge for their keeping until they are six months old. We will take twelve as our number, and set down their keeping for the 1st winter, at 3 dollars each - - - - - - - - -	$ 36
Second year, pasturing and wintering at 6 dolls. - -	72
Third year, pasturing and wintering at 8 dollars, - -	96
Fourth do. do. do. at 8 dolls. - - - -	96
And 360 bushels of corn, for stall feeding at 20 cts. per bushel,	72
Entire cost, not reckoning labour or risk, - - - -	372
These, if good cattle and well taken care of, will average, at four years old 8 cwt. making in all 96 cwt. which, with us, is now worth 4 dollars per cwt. - - - - -	384
Profit, - - - - - - - - -	$ 12

Here again it would appear that raising cattle is an unprofitable branch of husbandry.

In these calculations we take it for granted, that we pasture in enclosed fields during summer, and feed with hay in the winter. However, we resort to various expedients to reduce the expense, such as feeding with straw in the winter, and suffering the cattle to run in the woods during the summer. Some send their young stock to the mountains for summer pasture, which costs but little. Many of our best farmers pay but little attention to raising stock, but make a handsome profit by purchasing from the inhabitants of new and thin settlements, and fattening on clover pasture and stall feeding. This, when judiciously managed, generally repays handsomely. It has also this advantage, that we bring all the bulky and unsaleable produce, consumed by these cattle, into a small compass,

and a state to command cash. It is also much better to feed as much as possible of your produce on your farm. Although you do not at first appear to have so large a profit, you are eventually compensated by the abundant supply of manure with which you are furnished.

It ought here to be noticed that nine tenths of our work is done by the owners of the soil, and their hardy sons, and although the profits be small, whatever they are is clear gain.

In the above estimate I did not consider it necessary to set down in detail, the quantity and value of every article consumed by the horses and cattle. The sheep estimate will supply this omission, as it shows the value of such articles.

Estimate of Sheep.

Suppose we purchase 100 full bred ewes at $ 10 each,	$ 1000 00
Twenty five acres of pasture, which is sufficient, can be had at 1 dollar per acre, - - - - - -	25 00
Six tons of hay, at 4 dolls. per ton - - - -	24 00
One hundred bushels of oats, at 12½ cents per bushel	12 50
A man can easily attend to 500 head and do considerable work during the summer season besides. We will, however, allow *one fourth* of a man's time, $ 150	37 50
Shearing, salt, &c. &c.	6 00
	$ 1105 00
The fleeces of the above, if good, will average 2 dolls. each	200 00
From 100 ewes, properly kept, we will raise 75 lambs. These, at six month old, are now worth 7 dolls. each	525 00
Stock of old ewes, - - - - - - -	1000 00
	1725 00
Deduct expenses and cost, as above, - - - -	1100 00
	625 00
Deduct 20 per cent. for interest, losses, &c. - -	125 00
Gain, first year - - - - - - -	500 00

Although the profit appears large, it has been more than realized by every one amongst us, who had the fortune to possess a good flock of sheep, and took proper care of them. It would be altogether wild to calculate on the continuance of this state of things. The disproportion of sheep husbandry and every other kind is too great to last. Many of our farmers who heretofore scouted Merino sheep, are now going into the business with spirit; this will have a tendency to equalize. But let the best use be made of our present stock of fine wooled sheep, and it must be several years before the business can de reduced as low as the other branches of farming are now with us.

TUMORS.

Mr. Bartlet directs, that when these appear on the poll, withers,

under the jaws, or in the groins of horses, they should be forwarded by ripening poultices of oatmeal boiled soft in milk, mixed with oil and lard, and applied twice a day, until the matter is perceived to grow soft and move under the fingers; and then it should be let out by a sufficiently large opening with the lancet. Let the opening be full as far as the matter extends. After cleansing the sore, apply pledgits of tow, spread with a salve, or ointment, made of Venice turpentine, beeswax, oil of olives, and yellow rosin; and let these be administered twice a day, if the discharge is great, till a proper digestion takes place, when it should be changed for pledgits spread with the red precipitate ointment, applied in the same manner.

Should the sore not digest, but run a thin water, foment it as often as you dress it, and apply over the dressing a strong beer poultice, and continue this till the matter grows thick and the sore florid. Should any proud flesh get into the sore, wash it as often as you dress it with a solution of blue-vitriol in water, or spinkle it with burnt-allum and precipitate. If these should not prove sufficiently powerful, apply caustics, by washing it with a solution of half an ounce of corrosive sublimate in a pint of water. Where the sore can be tightly compressed with a bandage, however, these funguses may be generally prevented.

Tumors, caused by bruises, should if necessary, be bathed with hot vinegar or verjuice; and then a flannel cloth should be wraped round the part, if it can be done. If this does not abate the swelling, especially if it be in either of the legs, poultice it twice a day, after bathing it with winelees, or beer-grounds and oatmeal, or with vinegar, oil, and oatmeal, till the swelling abates; when, in order to disperse it entirely, let it be bathed twice a day with a mixture of two ounces of *crude sal ammoniac* in a quart of chamber-lie, having rags diped in this and laid on.

Where the extravasated blood is not dispersed by these means, let an opening be made in the skin, and let the blood out, and then heal the wound.

INSECTS.

Immense numbers of these prey upon the labours of the farmer, against the ravages of which, it is, in many instances, difficult to provide adequate remedies.—Such, however, as have been discovered, shall be noticed, as something is said of the different kinds of those insects which are found most troublesome.

Some vegetables are offensive to all insects; such as the elder, especially the dwarf kind, the onion, tansy, and tobacco, except to the worm that preys on that plant. The juice of these may therefore be applied with effect, in repelling insects; and sometimes the plants themselves, while green, or when reduced to powder, particularly the latter, when made into snuff.

Set an onion in the centre of a hill of cucumbers, squashes, melons, &c. and it will effectually keep off the yellow striped bug, that preys upon those plants while young.

No doubt a plant of tobacco, set in the same way, would answer

a similar purpose; or, perhaps, to sow a few tobacco or onion seeds in the hill, when planting, would have the same effect: and the growing plants from these seeds could be taken away, when no longer wanted as protectors.

Of other substances, sulpur is perhaps the most effectual, as every kind of insect has an utter aversion to it.

Powdered quick lime is deadly to many insects, and perhaps offensive to all.

The same may be observed of soot, wood ashes, and other substances which are strongly alkaline; and also of common salt finely powdered, brine, old urine, &c.

Calomel is also deadly to insects; and camphor, and terebinthine substances, are offensive to them.

After premising thus much, we shall now speak of insects seperately.

Grubs. Large maggots produced from the eggs of a species of the butterfly, very injurious to Indian corn, while young, by eating the roots. Frequent ploughings, manuring the land with lime, soot, ashes, or salt, all tends much to keep them out of the soil.

Most of the articles before mentioned as being offensive to insects, either boiled in or diluted with water, and that applied to the hills, especially just before a rain, will quickly drive the Grubs away.

Top or *Spindleworms.* White worms, resembling Grubs, found in the central hole, which is formed by the leaves of Indian corn; and they there eat off the stem which forms the top of the plant. They are mostly to be found near barn-yards, and in rich spots. They are discovered by their excrements appearing on leaves. Sprinkling the corn with a weak lye of wood ashes will extirpate them.

Blackworms. Ash coloured worms, with black stripes on their backs. When full grown, they are of the thickness of a goose quill, and about an inch and a quarter long. They hide in the soil by day and commit their depredations by night. They eat off young plants above ground and frequently endeavour to draw them under. It is said that manuring the ground with salt will drive them from it, and that lime and ashes will also have a similar effect.

Redworms, These are slender, about an inch long, with a hard coat, and pointed head. They will eat off wheat, barley and oats, above the crown of the roots: and they also eat through turnips, potatoes, &c. No adequate remedy is known, unless it be manuring with the manures before mentioned, which are offensive to all insects. Summer fallowings are also recommended, as depriving them of their requisite food.

Palmerworms. About half an inch in length, with many legs, and very nimble. They give to apple trees the same appearance that the Cankerworm does. Mr. Deane says, that great numbers of them appeared in the year 1791, in Cumberland, Massachusetts, and ate off all the leaves of the trees except the membraneous parts; but that next year they disappeared. They let themselves down from the trees by threads, similar to the Spider. No remedy known.

Timberworms. The smaller kind merely eat into the sap of wood, and turn it into powder post, as it is commonly called. Felling timber about the middle of winter, the time it has the least sap in it, will obviate this difficulty.

The large Boringworm takes its residence chiefly in pine timber. They are hatched in the cavities of the bark; and being small when they enter the wood, they grow larger as they proceed, till their boring may be heard at a considerable distance. If the trees be scorched in a light flame, says Mr Deane, or steeped in salt water, it will destroy these worms, or prevent their entering the wood.

The same Author also makes mention of the formidable armies of worms, which in the year 1770, overran the county of Cumberland, about the middle of July. They stripped the vegetables of their leaves, leaving only the stems; were extremely voracious; moved in apparent haste, and all in the same direction; crawled over houses, &c. unless they found an entrance. Other parts of the Eastern States have since experienced their ravages.

The best security found against them was, to stop their course by trenches, having their sides leaning over, out of which they could not climb, after they had got into them.

HOP (*HOMULUS.*)

This plant requires a rich mellow soil, well prepared by digging or deep ploughing. Bog meadows are good for raising it.

The plants are raised in hills, six or seven feet apart, where the soil is not very rich, and at a greater distance, where it is richer. In the spring, when the plants begin to shoot, take cuttings from branches which grow from the main root: If of the last year's growth, the better; and these are known by their white appearance. Let each have three or four buds; bury them lightly in the hills, with the buds uppermost; allow two or three sets to a pole, and three poles to a hill. For making the hills, first dig round holes about three feet in diameter, one foot in depth, and deeper if the soil will admit it; fill up these with the earth thrown out, well mixed with old compost, if the soil be not already very rich.

The first year, the hills are not to be poled; but the ground in this, as in all succeeding years, is to be kept mellow and free from weeds, by ploughing and hoeings. As the vines rise this year, let them be slightly twisted together on each hill, and let the hills be raised a little by hoeing in some earth round the vines.

Early in the spring, the second year, and always after this, the hills are opened, and the sprouts or suckers cut off within an inch of the old root; but that must be left entire, as well as those shoots which incline downwards, to form new roots. Some manures should occasionally be added, of composts formed of seasand, marle, ashes, &c. with other ingredients, such as rotten hogdung, &c.

The poles should never be too long, as the vines never begin to bear much till they have got to the ends of the poles. Set them so as to form a triangle, with one point to the north, and let them meet together at the top. Poles of ten feet are long enough for the first

year: after that, they are to be fifteen, eighteen, or twenty feet long, according to the strength of the ground; but never so long as that the vines cannot go somewhat beyond their tops.

About the first of September, or as soon as their colour is changed, and they emit a fragrant smell, they are to be gathered. If gathered later, the vines will bear more the next year; but the present crop will not be quite so good.

When the poles are drawn to be picked, cut the vines asunder three or four feet from the ground; for cutting lower, while they are green, weakens the root by too great a flow of sap.

The best way to dry them is on kilns, and this is necessary where large crops are raised; but they may be dried in the sun, or on floors under cover, though these will not be so well flavoured, as when kiln-dried. When kiln-dried, let the heat be steady and moderate; for if it turn the hop brown it will be injured. Let them lie about six inches thick, and be frequently turned, while dried. The seeds will crackle a little, when bursting, and then the hops are sufficiently dried.

Before they are baged, they should be laid in a heap about four days, to sweat and grow tough; and if covered with blankets awhile, they will be the better. The bags are to be of coarse linen cloth, about eleven feet long, and about two and a half yards in circumference, and should contain about two hundred and fifty weight of hops. The thicker the bag the better they will keep.

To bag them, a hole is made through an upper floor, to which the open bag is suspended; the hops are thrown in, in small quantities at once, and trod down as hard as possible; for the harder the better. When full, sow the bag up as tight as possible. Mind to make four handles to the bag, one at each corner. They are made by tying a handfull of hops in each corner, so as to form knobs, which may be easily held in the hand.

The best poles are those which will last longest. Chesnut is on this account to be preferred. They are to be laid under cover, while not used. Each pole should have three vines, and all above this should be broken off in the spring.

A hop-garden, says Mr. Young, will last almost for ever, by renewing the hills that now and then fail; but the better way is to grub it up, and new plant it, about every twenty-five years.

Mats made of the splinters of ash will answer as well as those made of hair, for the purpose of being used in kilns for drying the hops.

The seed of the hops is the strongest part; and therefore they should always be gathered so soon, that these will not fall out in gathering.

The long white hop is most esteemed, as yielding the greatest quantity and being the most beautiful. Care should be taken to have the hops all of one kind; for, if there be different sorts, some will propably ripen before others.

Some say that the hills in the hop-yard should be covered with manure every fall, to preserve the roots from the frosts; but this may propably be the suggestion of those who are often so minutely

nice, that their practice is not warranted by the expense. Experience, however, is the best guide in these matters.

The culture of hops is very profitable. At the price they command in this country, an acre of them, well cultivated, will amount to two or three hundred dollars, and the expense, to the acre, of raising them will not be more than one hundred. Nor need the farmer be fearful of a want of market for them, as they are always a good article for exportation, if not wanted at home.

FARMER'S CALENDER.

Carefully lay up tools that have been used in the fall work. Many farmers are very negligent in keeping their accounts. Hence they do not know how much property they really possess; their expenditures are suffered to exceed their income; and if they are suddenly removed from life, their property is left in confusion, their estates vanish under the hands of the executor, and their children, who have perhaps been trained up delicately, are left poor and dependent.

Farmers—in these long evenings, you want the company of friends, and the best are in your family,) of a well edited newspaper, and a book from the parish library. Furnish your children also with books that will be so interesting that they cannot refrain from reading them.

Let the farmers cease to look abroad for sources of sudden wealth—let each attend to his farm understandingly—let him know his own plan and pursue it steadily—let him do his own work well and in due season—see that all is in order, fit for what it is designed—contribute cheerfully to objects of usefulness and public improvement, regarding with anxious care the interests of church and schools—let him discontinue idle and vicious habits, and promote good conduct and vital piety in the circle around him by his own example—and let him, in short, strive earnestly to discharge his duty to himself, his neighbours and his GOD, and he cannot fail of success; but with an approving conscience, and the smiles of Heaven, he will secure to himself the rank of an honest, intelligent, and independent American Farmer.

Method of making transparent soap.

Tallow is the basis of all soaps for the toilette known under the name of Windsor soap; and tallow soap, dissolved by heated alcohol, becomes transparent, and returns to its solid state on cooling. It is this fact which has led to the discovery of transparent soap. When well prepared, this soap should have the appearance of sugar-candy. It may also be coloured, and vegetable colours are preferable to mineral for this purpose. It may be made by putting a cake of Windsor soap, cut small, into a thin glass phial, filling the phial half full of alcohol, and placing it near the fire till the saop be dissolved. The mixture, put to cool in a mould, gives the transparent soap.

COWS.

Observations relating to cows, their food and pasture; and how far the goodness of milk, butter, and cheese may depend either upon the kind of cattle, the soil where they are grazed, or the management in the dairy.

I observe only three sorts of kine in England, which are remarkably different in their colour, viz. the black, the white, and the red.

The black sort is commonly the smallest, and it hath been observed is the strongest for labour; we find cattle of this colour chiefly in the mountainous countries, where they are still much smaller than when they enjoy the free nourishment of the low rank grounds; but yet I have never observed them of so great a stature or bulk of growth, when even they had the richest pasture, as is common in the white and red kinds. It is observable, that the cows of this black strain seldom yield more than a gallon of milk at a meal; but to make amends, they continue in milk till within a very few days of calving; so that we can hardly say they are ever dry: whereas the other sorts, who are remarkable for their colour, as the white or the red, will, after calving, give large meals of milk, near three times as much as the former, but grow dry very soon.

The white breed of kine, according to some remarks of a very learned gentleman, were very frequent in Lincolnshire, about sixty or seventy years ago, from whence he first brought them into Surry, as a curiosity; they are of different make, and much larger than the black cattle, and give more milk at a meal, but go dry very soon.

The red kind is commonly the largest of any sort in England; and it is observed by some farmers, that they will give more milk at a meal than the cows of any other colour, It hath likewise been the opinion of physicians, that the milk of the red cow is more nourishing than that of any other sort of kine, as is remarkable by their prescribing it to consumptive persons. Wherever I have had an opportunity of examining into this part of farming, which relates to a dairy, I have always found the red cows to give much more milk than the black sort, where the farmers have been wise enough to keep one genuine breed of kine from mixing with another, as some do now in Somersetshire, and the adjacent parts, where I am informed the red sort of kine was first bred, and is chiefly propagated still, for the sake of its large size, which will yield in the markets for the butcher's use much more money than the natural breed of black cattle. The mixing of these sorts, hath been the means of producing the pyed kine, now pretty frequent, and the bringing the more lusty race into a degeneracy; as it hath brought the dwarfish strain to be a larger size than they were originally; and at the same time the qualities which were admired in either distinctly before coupling, are now so confounded one with the other, that their original perfections are scarce to be traced out. The red cows do not only give more milk at a meal than those of other colours, but bring better calves.

It is of great benefit to a dairy to have a cow calf about the end of March or beginning of April, that she may come to her milk just

when the spring is rising, and the grass is full of vigorous, and nourishing spirits, which will greatly add to the quantity of milk she will give at a meal.

It is no way agreeable to the rule of skilful farmers to permit the calf to run with the cow in the spring of the year; because they value the milk for dairy use, while the grass is flourishing and rich, more than the profits which would arise from a calf at that season; they therefore fatten the calf with all possible dispatch, and dispose of him to the butcher. But when a cow calves about the latter end or beginning of the year, in the depth of winter, the calf may be brought up for increase; the milk then is not so fit for a dairy, and the calf will be the more hardened against distempers, and thrive by the nourishing food of the following spring, and be much more gentle and familiar, than if it had at once fallen in with plenty.

On the utility of grinding Maize (Indian corn) in the cob, as food for cattle, with a description of a mill for the purpose, by James Mease, M. D.

The practice of grinding Indian corn in the cob, to powder, for the purpose of horse feed, is now common with our German farming fellow citizens. Those industrious men are ever attentive to the health and general welfare of their farm stock, and readily adopt any measure calculated to promote either object, and as they are convinced of the nourishing qualities of the cob, and the economy of the practice of using it as an article of food, they have encouraged the general erection of the necessary apparatus, in the flour mills in the different settlements.

The first apparatus used for the purpose of grinding corn in the cob, was a screw, which was originally invented by Oliver Evans, of Philadelphia, and now in general use to break gypsum. Mr. Evans first introduced it to practice in the year 1795, but no measures having been taken to give publicity to it, the knowledge of it was diffused very gradually through the country; and it even appears that private offers for the gratuitous use of it were ineffectual, (until after some years,) in causing a trial of what is now deemed an economical practice of the first consequence.

It was not until the year 1803, that I heard of the practice having been adopted in Lancaster county, and in 1804 I had great pleasure in seeing it in operation, in a mill on the Perkiomen creek, in Montgomery county, Pennsylvania. I was so fully persuaded of the utility of the practice, that I wished to profit by it, and endeavoured to persuade a miller in Delaware county, near to where I had a farming interest, to erect one, but without avail. His scruples arose from an apprehension of an insinuation on the part of some people, that he would mix the meal of the corn and cob with his wheat flour, and he well knew that the mere suggestion of such a practice might prove injurious to his reputation.

Indian corn is of itself too nourishing, and too heating as a constant article of diet for horses, and if fed alone, a sufficient quantity cannot be given to them to produce the stimulus of distention,

(which is as necessary for a working horse, or even to man, as nourishment,) without great expense, and at the same time endangering the health of the animal. Corn meal is therefore mixed with a portion of cut straw, and coarsely ground rye, or shorts, and in this state constitutes the daily food of that fine body of draught horses that do so much credit to our draymen and carters of Philadelphia, and the industrious farmers of the state at large.

The powder of the corn cobs, however, does not act entirely by distension: it also contains much nutriment, and I have heard of a poor woman in Maryland, who prepared during the winter, a very grateful daily mess for her cow, by boiling the bruised cobs with which she was furnished by her wealthy neighbours; with this liquor, mixed with what other vegetable matters she could procure, and a few corn blades, she supported her cow well through the winter and spring, until the return of grass.

EFFECTS OF SEASON ON CROPS.

By T. Semple.

In the Argus of western America bearing date the 10th of January, 1817; I saw a resolution of the Philadelphia Society for Promoting Agriculture, wherein they requested their agricultural or other fellow citizens to afford such information as would tend to promote agriculture. Whether that request extended as far as Cumberland or not, I cannot tell; but when I first saw it I resolved to communicate to you, such information as I thought would be of benefit, and at the same time, think perhaps the correspondence would likewise be of benefit to me. I am not a farmer. But such information as I can collect I will give unto thee. Mr. William Smyth informed me not long since, that the red clover in the meadow had during the last year nearly destroyed the timothy, evidently on account of that grass being more prevalent in that extraordinary season than the timothy. Another gentleman informed me that the frost in the spring so completely killed the apple, that the consequence was a total failure of the fruit, but to his surprise, in the month of August, the trees blossomed and brought forth fruit, which grew to the size of hen's eggs, and was of course destroyed by the frost in autumn before they could arrive at perfection; some of the applies I tasted myself, and they had all the qualities of a common green apple. This circumstance I never saw before. The same gentleman likewise told me that neither the weevil, the fly, nor rust (or rather blast) have injured wheat within his knowledge in 1816. Whereas it had not failed injuring more or less since his residence in Kentucky; owing as I conjecture, to the coolness of the spring and summer. This accords with reason, for in colder climates the wheat produces more, and clearer of blast or weevil than it does in this country.

On the utility of planting hops near grape vines, in preventing the destruction of the grapes by insects, by Jas. Mease, M. D.

It is well known to most of those who have attempted the culti

vation of foreign grapes in the country, that they do not succeed, owing to the influence of mildew, rapid variation in the temperature, and punctures made in the fruit by insects particularly the black wasp: while on the contrary, that they succeed very well in Philadelphia where they are more sheltered, where the influence of the sensible qualities of the air is less felt, and insects fewer than in the country. The operation of some of the causes mentioned is beyond our controul, but for one of them, viz. insects, a remedy it is believed is within our reach, and that is to *plant* a *hop-vine* at the *side* of *the grape-vine*. For this discovery we are indebted to I. Redman, Esq. of New Windsor, Bucks county opposite Bordentown, on the Delaware; who made it in the following accidental way. Having a grape-vine, the fruit of which had been annually destroyed by insects, and wishing to have shade near the vine, he planted a hop-vine at the root of the grape-vine; the consequence has been, that it has borne fruit for the two last years: the bitterness of the hop plant, and the effluvium emitted from it, probably prevented the insects from approaching or feeding on the grape-vine entwined by the hop plant. A lady to whom Mr. Redman mentioned the fact of the utility of the hop in preventing the grape from insects, told him that she had a grape-vine that grew near a hop-vine, which bore abundantly while the fruit of others planted more remote from it was annually destroyed by insects. From these facts we may, I think conclude that the hop-vine affords at least a probably remedy against grape insects, and as hops are an indispensable article on all farms, and the surplus produce always commands a ready sale, there can be no objection to their being constantly planted near a grape-vine.

DISEASES OF CATTLE,

And signs of approaching changes in the weather.

The brute creation are, in general, liable to fewer maladies or complaints than mankind; and, as these diseases are less complicated, they are, of course, more easily to be relieved: yet, among the various phenomena in the history of man, it is not the least singular, that the treatment of sick cattle has hitherto been confined chiefly to the most illiterate and ignorant peasant—men equally unacquainted with comparative anatomy, and with the relative powers of medicine. Hence many thousands of valuable beasts have necessarily perished for want of that assistance which attentive observation, aided by sedulous inquiries, might have remedied, if not altogether prevented, by an unremitting regard to cleanliness in every department connected with the rearing of cattle.

With animals, as with the human frame, the variations of the atmosphere have a material influence on health; hence, though the limits of the present work confine our discussions to the chief distempers affecting cattle in general, we trust it will not be altogether useless to premise a few hints, founded on experience, relative to the ascertainment of the different changes of the weather—more parti-

cularly, as an occasional reference to these remarks may afford the farmer some guide in directing the diversified operations of the field.

Among the various phenomena which attentive observers have found to indicate approaching changes in the atmosphere, the following may be selected as affording the most certain signs.

1. *By animals.* 1. Previous to rain and wind, or stormy weather, *neat cattle* and *sheep* seem more than usually desirous of feeding in their pastures, and to leave them with reluctance. A similar change is announced by the uneasiness of *swine*, which grunt loudly, and retire to their sties; by *geese* and *ducks* washing themselves repeatedly, and with little intermission, flying anxiously backwards and forwards, by *swallows* flying low and skimming along the surface of the water, twittering with more loudness than usual; and by *poultry* rolling much in the dust and sand, or gravel. Wet and windy weather is likewise indicated dy *dogs* becoming drowsy and stupid, and exhibiting an evident reluctance for food, except grass (particularly the species denominated dog's grass, or couch grass;) and by *cats* losing their vivacity, and remaining within doors. *Continued rain* is announced by *pigeons* returning slowly to their cots; a change from cloudy or unsettled to greater wet, by *flies* stinging and swarming more than usual; and a sudden variation, accompanied with a storm, by *wild ducks, plovers, bustards*, and other *aquatic birds*, withdrawing to the sea coast, or to the marshes.

The contrary circumstances evince the longer or shorter continuance of fine weather, to which may be added, that *bees* flying abroad, and with that industry which has become proverbial—*crows* croaking in the mornig—the *robin*, or *red-breast*, singing early from the more elevated branches of trees—the *gnats* flying in a calumnar form, within the rays of the setting sun, are all indications of fine or serene weather.

II. *From the appearance of the earth.* Thus moist stones and dry soil prognosticate rain; a continued fall of which may be expected, if the ground seem nearly dry, and the roads almost, if not wholly, free from mud: as the contrary occurences announces, that the evaporation of humidity has ceased, and, consequently, that fine weather is approaching.

III. *From the atmosphere.* If in the evening a white mist is spread over a meadow, contiguous to a river, it will be evaporated by the sun's rays on the following morning, and is an indication of fine weather throughout the day; so in the morning, if a mist, which is impending over low lands, draw off towards those which are more elevated, it announces a fine day. The gradual diminution of clouds, till they can no longer be seen in the air, is a sign of fine weather; so likewise does the continuance of abundant dew upon the grass after a serene day. The contrary events announce a change of weather, which may be more clearly known by the clouds gathering and lowering; by the sky, after serene weather, becoming undulated as it were with small clouds. During winter, if the clouds appear not unlike fleeces, *i. e.*, thick and close in the middle, and

very white at the edges, the surrounding sky being remarkably blue, they indicate hail or snow, or cold, chilling showers of rain. Further, where the clouds appear moving in two opposite currents, and the lower current is wafted rapidly before the wind, it is a certain sign of rain; and, if they occur during summer, or generally hot weather, they announce thunder storms. If the rays of the *sun* break through the clouds, and are visibly dazzling in the air, the latter is loaded with vapours that will speedily descend in showers of rain. Thunder is mostly preceded by hot, and followed by cold and drizzling, or showery weather. Frequent variations of the wind to the different points of the compass evince the speedy approach of rain, particularly if it *whistle* or *howl* in its course through the atmosphere. The west wind is usually damp, on account of the vast quantity of vapour it collects in its progress over the Atlantic ocean; the south wind, which blows from the torrid zone, is the warmest of the four—as the north wind is the coldest, while the east wind is the most dry; but if rain fall during the prevalance of an easterly wind, it may be expected to continue, with little intermission, for twenty-four hours.

IV. *From the seasons.*—1. A moist autumn, followed by a mild winter, is usually succeeded by a dry and cold spring, in consequence of which vegetation is materially retarded: such a spring occurred in 1741. 2. Should the summer be unusually cold and wet, the ensuing winter may be expected to be extremely cold; for the heat, or warmth of the ground will be dissipated, or carried off, in consequence of such unusual evaporation. 3. Very wet summers are mostly attended with an increased quantity of seed on the dog-rose and white-thorn bushes, so that the uncommon fruitfulness of these shrubs may be regarded as a certain indication of an intensely cold winter. 4. A severe winter is uniformly predicted by cranes and other birds of passage migrating early in autumn—for these creatures never take their flight southwards until the cold season has commenced in the northern regions. 5. Should frequent showers fall in September, it seldom rains in May; and the reverse. So there usually falls less rain in April than in October, in the proportion of one to two—in March than in November, in the proportion of seven to twelve.—6. On the contrary, should the wind blow from the south-west, during either summer or autumn, and the air be uncommonly cold for those seasons, a profuse fall of rain may be speedily expected.—7. A kind of crisis takes place in the atmosphere after great storms, rains, or similar violent commotions of the clouds, so that they are for some months attended with a regular succession either of bad or of fair weather. Lastly, a cold and rough autumn prognosticates an intense winter; as the latter season, when rainy, is mostly succeeded by an unproductive year.

Gardener's Directory.

When no storm has either preceded or followed the vernal equinox, the ensuing summer is in general dry, or at least so five times out of six.

If a storm happens from an easterly point on the 19th, 20th, or 21st day of May, the succeeding summer will also be dry four times

in five. A dry summer will likewise follow, if a storm arise in any point of the compass on 25th, 26th, or 27th days of March.

Should there be a storm either at south-west, or west-south-west, on any day from the 19th to the 21st of March, the ensuing summer will be wet five times out of six.

In England, if the springs and winters be *dry*, they are generally *cold*; but if *moist* or *humid*, they are usually *warm*; whereas, *dry summers* and *autumns* are most *hot*; as, on the contrary, *moist summers* are *cold*. Thus, if the moisture or dryness of a particular season be ascertained, an idea may be formed with tolerable precision respecting its temperature, and the farmer, by attending to the various indications of the weather, will be enabled to provide accordingly for the exigencies of his cattle stock.

Complete Grazier.

FROM THE EUROPEAN MAGAZINE.

POULTRY.

SIR—As the following account, together with the few observations I have made on the management and feeding of fowls, may prove acceptable, and afford some useful hints to many among the numerous readers of your entertaining and widely circulating miscellany, you will oblige me by giving them a place in your work.

I procured two pullets of the black Spanish kind, which were hatched in June, 1818, and fed them constantly myself twice a day, alternating their food, that is, I gave them corn in the morning, and in the afternoon boiled potatoes mixed with *fresh* bran, but I never allowed them to take a *full meal* of corn. They had a small orchard to range in, where, in the course of the day, they occasionally picked up worms and other insects; and, I have observed that poultry of all kinds eagerly seek for animal food even after they have satiated themselves with corn; indeed, I conceive a portion of animal food essentially requisite to preserve them in a healthy state.

The above mentioned pullets began to lay about the middle of November, and continued to do so till within the last ten days, when they began to moult their feathers, having produced *three hundred and sixty-seven eggs, much larger and finer than those of the common fowl.* Seven eggs weigh one pound avoirdupois, so that I have been furnished with the astonishing weight of more than 53 pounds of nutritious and wholesome food from *two hens.* They were never *broody*, nor showed a disposition to set at any time during the whole season, and I understand this property is peculiar to this species of fowl: it is, however, an advantage more than otherwise, as the common kinds can incubate their eggs, and foster their young.

G. C. JENNER.

MORTAR OF POTATOES.

By M. Cadet de Vaux.

In a court yard there was a wall, the part of which nearest the

ground have been repaired ten times, so that the mason hesitated to repair it any more, when I proposed to him to mix boiled potatoes with his plaster. Let me confess it; he laughed in my face, and shrugged his shoulders. However, I went to the hog's trough, took out some boiled potatoes, and put about a pound into the mason's trough. The repair was completed, and the wall has remained in good condition for several years, offering the following phenomenon, viz.—It retains its solidity, notwithstanding the efflorescence on the surface of salt-petre, which is found crystalized. The result naturally led me to mix boiled potatoes in the composition of the coat of plaster, and still more of argillaceous earth; which has perfectly succeeded on a shed in a garden, which is exposed to every wind, and the sides of which are composed only of hurdles, covered over with a mixture of argillaceous earth and boiled potatoes.

If these particulars could come to the knowledge of the poor people in the country, their wretched hovels would become habitations dry withinside, and consequently healthy.

SOILING OF CATTLE.

Feeding cattle in stalls, during the growing season, with grass cut and carried in to them, it is particularly recommended for milch-cows, working horses, and oxen, and for fattening cattle; and Mr. *Young* also recommends that swine be soiled in a yard for the purpose.

The advantages of this method of husbandry have been experienced in Europe; and it is recommended by Mr. Young, by the compilers of "The Complete Grazier," and by other eminent Farmers of Great Britain. A communication of Dr. Thaer, physician of the electoral Court of Hanover, to the English Board of Agriculture, as to the result of the experience of the Baron de Bulow and others, lays down the following as facts which, he says, are incontrovertable:

1. A spot of ground which, when pastured, will yield only sufficient food for one head, will abundantly maintain four, when kept in the stable.

2. Soiling affords at least double the quantity of manure from the same number of cattle, for the best summer-manure is produced in the stable, and carried to the fields at the most proper period of its fermentation; whereas, when spread on the meadow, and exhausted by the air and sun, its power is much wasted.

3. Cows which are accustomed to soiling will yield much more milk, when kept in this manner; and fatting cattle will increase much faster in weight.

4. They are less subject to accidents and diseases; they are protected from the flies which torment them in the fields during warm weather; and they do not suffer from the heat of summer.

There are other advantages attending this method of husbandry. The trouble to drive the milch-cows to and from the pastures, three times a day, is saved; the working horses and oxen are always at hand, so that no time is lost in going after them, and, what is of

no small importance, when the cattle are housed the growing crops are in more safety.

For the most profitable cultivation of the earth, it is requisite that it should be in the highest state of fertility. Some measures will enrich a soil to a certain extent; while others will make it still richer Generally speaking, barn dung is the only manure, accessible by every farmer, with which grounds may be fertilized in the highest degree. But how is a sufficiency of this to be had ?

If all vegetables were buried, when green, in the soil where they grew, the manure thus afforded by them, together with what additions the soil receives from the air by the requisite ploughings, would be constantly increasing its fertility. The vegetable mass produced on a farm is indeed left on, but with much waste, not only in the drying of the vegetables before they are put into the barn, but in the drying and washing of the dung, and the evaporation of its best parts, when left in the barn yard, before it is mixed with the soil; and by the still greater waste, when droped in the fields.

The essential point, then, is to make and save the greatest possible quantity of barn dung manure from a given quantity of ground; and this is only to be accomplished by soiling.

For this purpose, therefore, some of the most intelligent European farmers have barns with cellars under them, for the purpose of receiving the dung of the cattle, and into these the dung and litter are constantly thrown, where they are prepared, by a due state of fermentation, for mixing with the soil. Suitable earths are also laid behind the cattle to absorb their stale as it runs backward, and these, when saturated, are also thrown down and mixed with the dung. Some, however, object to cellars as the receptacles of the dung, on the ground of their being too cool for the process of its fermentations during summer, and prefer sheds adjoining the barn, to keep the dung under cover to protect it from the rains. Where cellars are used, they should not be too deep, and should be well opened for the admission of warm air during summer.

The quality of the dung of cattle depends much on their food; that therefore which is made from green grass will be found superior to that made of dry hay; that which is made from fatting cattle is the best of any.

Having observed thus much, we will proceed to lay down a system of field-husbandry, in connection with the plan of soiling cattle, which we presume will be found far more profitable than the usual method of field-culture.

Take a field of proper extent, say, for instance, forty acres, as nearly square as may be, and of as nearly uniform soil as can be had, of a good gravelly-loam, sandy, sandy-loam, or other good arable soil, and sufficiently level. Clear it of stones, so as that it can be tilled in the most complete manner: Build a barn in the centre of this field, with a walled cellar under it, with a door to drive in with a cart on one side, and another to drive out at the opposite side. The barn is to be proportioned to the size of the field, and a communication to be made to it on the side most convenient, by a lane.

In this barn, stables are to be fixed for keeping a number of milch-cows, working-horses and oxen, or fatting cattle, proportionate to the size and products of the field. They are kept on grass, cut and carried in to them during the growing season, and on hay and other food during winter. The cows should be let out each day during the three milking times, and all the cattle should have a constant supply of water from a well made near the barn for the purpose. During summer, the water may be carried to the cattle in troughs in the stable, but in colder weather the cattle must be let out to troughs of water in the yard. As lucerne starts early in the spring, and grows late in the fall, it will probably be found one of the best grasses for early and late feeding. Perhaps some other grasses may be found best in particular soils, and for particular purposes.

The common trefoil or red-clover, which is mostly cultivated in this country, is very good for soiling. The morning's supply of grass should be brought in the afternoon, and that for the afternoon, in the morning; though, if it be a fact that dew is nourishing to cattle, it would seem the better way to bring in the whole supply for the day in the morning. A light hand-cart is to be used for bringing in the grass from the parts of the field nearest the barn.

After such a field has been brought under complete cultivation, and enriched by this mode of culture, it will probably keep, winter and summer, about twenty-five head of cows, and fatting or working cattle. The lucerne may be made to yield sufficient for soiling about six head per acre, or six or seven tons of hay per acre, if used for that purpose. The common red-clover may be made to yield upwards of four tons of hay, per acre, at two mowings, and is excellent as a lay for other crops. About four hundred loads of the best barn dung would probably be afforded yearly from such a field, which would be at the rate of ten loads per acre each year.

The extra labour required for cutting and carrying in the grass, cleansing the stalls of the cattle twice a day, during summer, would probably employ one hand two-thirds of his time. In return for this, the farmer saves the rent of at least twelve acres of the best pasture-land, which may be put at five dollars per acre, and his cows give more milk, and his fatting and working cattle keep better and thrive faster. Here, then, the farmer is amply repaid for his extra labour. But the great superiority of the soiling-system lies in this; by the great quantity of excellent manure, thus afforded, the farmer is enabled to carry on a system of field-culture that will be found to average one-half more of profit, than can be expected in the usual mode.

It has been observed, however, that those cows which have been always used to be kept by soiling, during the growing season, are usually more profitable than those which have been newly put to this method of keeping.

FROM THE NEW-ENGLAND FARMER.

FARMER'S CALENDER.

Culture of potatoes, Indian-corn, &c.

Your crops of the above mentioned and other vegetables, which

compose the staple commodies of the farmer, being now duly planted after culture requires attention. We will first pay a little attention to the potatoe.

The root does not strike deep in the earth; but extends a certain distance just beneath the surface. If planted too deep, or if too much dirt be drawn about it in hilling you may increase the number of potatoes in each hill; but they will be small, for they will form new sets each time they are earthed up in such a manner as to place them out of their natural position, and these new sets will not ripen in time to harvest them. The hills should be made wide but not high, and level or a little concave or dishing to retain the dews and rains. Twice will probably be often enough to hoe them for the purpose of forming the hill; but if the soil is infested with weeds, you must pull or cut them up, at least often enough to prevent their going to seed.

Dr. Deane says, "As soon as the rows of potatoe plants are grown to the heighth of four or five inches above the surface, or earlier, if the ground be weedy, the cultivator, with two mould boards, should be passed between them as deep as one horse can draw it. For want of a cultivator, a common light plough should go and return in an interval, turning the earth at the first ploughing from, and then at the second, towards the rows. After each ploughing the plants should be weeded, and a little fresh earth drawn close to their stems, uncovering those which chance to be covered by the cultivator or plough. Potatoes will not grow well if more than five inches under the surface, being too far removed from the influence of the sun.

"The last hoeing should be finished before the plants are in blossom; and before the branches begin to trail on the ground. Otherwise a new set of roots will be formed, too late to get their full growth, and which will rob the former sets of their nourishment. But, if killing the weeds be necessary after blossoming, it may be done with the hand-hoe, observing not to earth up the plants at all."

There is no plant, which we cultivate, which is more liable to injury from drought than the potatoe. It is therefore well to plough and hoe them while the dew is on, or soon after a shower, so as to cover and secure from speedy evaporation as much moisture as possible. Irrigation has been recommended as peculiarly useful for this plant in dry weather, and may in most cases be practicable when it is raised in small patches in a garden or near the homestead. Plaster of Paris well pulverised, and applied to the leaves, has a very beneficial effect on potatoes.

Potatoes are very liable to be attacked by the grub-worm; and fall ploughing is said to be a good antidote against this insect. Quick lime and unleached ashes, spread over the hills immediately after planting, are likewise recommended for the purpose. But care should be taken not to apply these substances immediately to the seed potatoes, nor to the plants while growing, lest they be injured by the corrossive qualities of such applications.

INDIAN-CORN.

We have, already, gone so fully into the subject of cultivating this plant, that we can say nothing new about it: but a word or two, by way of recalling to mind what has been heretofore stated, may not be amiss. Judge Peters, of Pennsylvania, recommends the harrow instead of the plough in the culture of this vegetable, and we believe that in weeding, or the first hoeing, especially in a light and what is called a mellow soil, there can be no doubt of the correctness of his opinion.—In a stiff, heavy or stony soil, a plough or cultivator may be best, at least for the second or third time of the hoeing, provided you leave the land nearly level, and finish your operations before the fibrous roots of the corn have spread so far as to be in danger of being cut or injured by the plough. The plough or cultivator leaves more of the earth light and in a situation to be easily disposed of by the hoe, and are less impeded by stones, roots and other obstacles, than the harrow. It will therefore, be best to be governed by circumstances, but, perhaps, as a general rule, harrowing for the first time of hoeing, and ploughing at half hilling and hilling, will prove the most advantageous modes of cultivation.—After your corn is hoed for the first time, it will be of great advantage to place about each hill a handful of ashes or gypsum. Some say that a mixture of both plaster and ashes, is better than either, used singly; and it would be easy, as well as worth the while, to ascertain the fact by experiment.

New England Farmer.

MILLET,—WHEN SHOULD IT BE SOWN?

Steubenville, (Ohio) Nov. 19, 1822.

Mr. SKINNER,

Your correspondents, who have written on the subject of millet, *panicum italicum,* have generally recommended that it be sowed about the 10th of May. Owing to the great droughts which have prevailed in this country, for several years past, it has only partially succeeded—vegetating very slowly, some of it shooting into heads, whilst some of it was just coming up. Why would it not answer to sow it about the middle or last of April, when the ground is yet moist? Would the late frosts injure it? or would it rot in the ground, unless it had become sufficiently warmed by the sun? An answer to the above queries, would be thankfully received by

Your's, with esteem,

JOHN M'DOWELL, Jr.

General observations on the culture of Flowers.

SOWING.

Where nothing is said to the contrary, it may be taken as a general rule to sow seeds, in proportion to their size, from a quarter of an inch to an inch deep. The Convolvulus, and such sized seeds

in general, may be sown a quarter of an inch deep; the Lupine, &c., half an inch; the Scarlet-bean, &c., an inch deep. A few pebbles should be put at the bottom of the pot, to drain off superfluous moisture: the soil will, of course, vary according to the plant; but whatever soil the plant may require, and many require a stony one, the earth should be light and free from stones above the seeds. After sowing, a little water should be given to settle the earth about the seeds. It is not advisable for individuals to save their seeds from home-reared plants: besides that they thrive better in a change of soil, they will often be stronger from plants in the open ground.

PLANTING.

To see if a plant wants fresh potting, turn it carefully out of the pot, with the earth attached to it, and examine the roots. If they are matted about the sides and bottom of the ball, the plant evidently requires fresh potting. Then carefully reduce the ball of earth to about a third of its original bulk; single out the matted roots, and trim away all that are mouldy and decayed. Probably the same pot may then be large enough; but, if it requires a larger, it should be about two inches broader for a middle sized plant; three or four for a large plant. If the roots are not matted, but the pots are filled with the fibres, keep the ball entire, and carefully plant it in a larger pot. At the top of a large pot, an inch; of a small pot, half an inch, should be left for the reception of water, without danger of overflow. A little gravel should always be at the bottom.

A plant, newly potted, must never be exposed to a strong sun; it should be watered and placed in the shade immediately, and remain there till it is rooted: which may be known by its shooting above.

Plants are frequently destroyed by replanting, merely from the careless manner in which it is done. Where the roots spread, plenty of room should be left open, a little hillock made in the centre of the pot, and the plant being placed thereon, the roots should be distributed around it in a regular manner, observing that they are twisted or turned up at the ends. The earth should be filled in, a little at a time, and the pot gently shaken, to settle the earth to the roots all the way down. When filled, it should be pressed down with the hand. It is very common to fill in the earth at once, and press it hard down; which not only wounds the tender fibres, but often leaves a hollow space towards the bottom of the roots, and deprives them of their proper nourishment. But the thing most necessary to be observed is, *that the roots be allowed their natural course.*

All plants should be kept clear of weeds, not for neatness alone, but because they exhaust the nutriment which feeds the plant.

WATER.

The best water for plants is undoubtedly rain-water; if this cannot be obtained, river-water will do: pond-water is not so good; but the worst of all is hard spring-water. In winter, and, for deli-

cate plants, even in summer, water should be placed in the sun till it becomes tepid before it is used.

The water should never be allowed to remain in the pan under the pot; it tends to rot the roots. It may be well to observe that plants should be watered with a rose on the spout of the watering pot; and the more finely it is perforated the better, so as to sprinkle the water lightly over the flowers and leaves, without bending them down with its weight.

Many persons think it sufficient to water the roots, which is a great mistake; it materially contributes to their health and beauty to sprinkle the whole plant. Bathing the feet will neither cleanse the hands, nor freshen the bloom of the cheeks. The Auricula, however, is one of those ladies of fashion, who, fearful of injuring the delicacy of their complexions by the use of water, cleanse their faces with some elegant powder as a substitute for that rude element. There is a farina in the flower of the Auricula, which is usually esteemed its principal beauty: this is the case with the Polyanthus also, and some few others, of which the blossoms must not be watered.

Of such plants as are succulant, it is generally advised to water the leaves but seldom, lest a redundancy of moisture should rot them: the merely plucking a leaf, will generally determine whether a plant be succulant or not; and a person may distinguish in a moment what blossoms are likely to be hurt by water, by observing whether there be any visible farina on them. The best way in watering all plants, is rather to cast the water at, than to pour it on them, as it falls more lightly. It will be observed, that more water, as well as more shelter, must be necessary for potting plants, than for plants in the open ground.

AIR AND LIGHT.

Flowers must not be denied the light, towards which they naturally turn; the want of it will injure their health, as much as the want of water, air, or warmth.

They must also be allowed air: even those that will not bear the outer air, must have the air of the room frequently freshened by ventilation, to preserve them in health. Care should be taken not to let plants stand in a draught; for, so situated, one strong gust of an easterly wind will often prove sufficient to destroy them.

In frosty weather the windows should be kept close, and at night the shutters. Those plants directed to be placed in an inhabited room, will not usually require a fire, if in a room which has had fire in the day; but in sharp frost it will be well, instead of stirring out the fire, to leave a little, on retiring to rest, and place a guard before it for security.

INSECTS.

If any plants are infested with insects, which is often the case with Rose-trees, Heart's-ease, &c., they should be watered with tobacco water, which quickly destroys them. Some say that, independently of the removal of the insects, it improves the verdure of the plant.

One pound of roll tobacco will suffice for three pints of water, which should be poured on it nearly boiling, and stand a few hours before it is used.

RULES.

The leaves of bulbous flowers should never be plucked before they decay, or the bulb will thereby be deprived of a large portion of its natural nourishment. When the flowers and leaves have decayed, the bulbs should be taken up, dried in the shade, all loose earth, fibres, &c., should be cleaned off them, and they should be put away in a dry place, and safe from mice, &c., until wanted. They should not touch each other, but either lie all on a flat surface, or be kept apart by some dry sand. Bulbs should have no fresh water after their leaves have begun to decay.

Some persons put a piece of nitre, of the size of a pea, into the water in which the bulbs are raised, renewing it whenever the water is changed, in order to make the colours brighter. It may not be known to every one who finds amusement in the cultivation of flowers, that pots are made purposely for bulbs, as wide at the bottom as at the top, and of the requisite depth. When they are grown in earth, it is advisable to procure these pots ; for of the common kind they cannot be obtained sufficiently deep without being much wider than necessary.

KEEPING COWS.

Keep no more cows than you can keep well—one cow well fed, will produce as much as two indifferently treated, and more butter, and if the cow be wintered badly, she will rarely recover during the succeeding summer, so as to become profitable to the feeder. Cows should, by all means, be housed in extreme weather, and particularly those which give milk, or a failure in the quantity of milk will be experienced. Therefore, instead of keeping twenty cows poorly fed and but half stabled, sell ten, and give the remaining ten food to the amount equal to what the twenty originally had ; procure constant stabling for them, and you will find that you will receive quite as much milk and butter, in return, as was derived from the former mode of treating twenty. Sweet-potatoes, carrots, pumpkins, and ground oats, are unquestionably among the best articles of food for milch cattle ; they occasion the milk and butter to assume a fine flavour and colour, as well as an increase of quantity.

BEST SHAPE FOR CATTLE.

Extracts from the honourable T. Pickering's address to the Essex Agricultural Society.

To the question, ' what is the shape for feeding well with little food ?' Mr. Knight, (a gentleman in England, eminent for his knowledge and accurate observations relative to plants and animals) answers, ' the more deep and capacious the chest, and the shorter and lower any animal is, relative to its weight, the better adapted it will be to live and fatten upon little food ; the more labour it will

also go through; and I have always found the most short legged oxen to be the best labourers.' Mr. Marshall also observes, in his Rural Economy of Gloucestershire, that the best labouring ox he ever saw, had the shortest legs.

CATTLE STALLS.

The common cattle stalls of our country are so ill contrived and so straitened in their dimensions, that the cattle are constrained to lie down, in part, in their own dung.—This dries and forms a thick coat on their hind quarters, from which they are not relieved till they shed their hair in the spring. They are thus rendered uncomfortable. To be uncomfortable is to suffer some degree of pain, and no one will suppose that animals in pain can thrive, or preserve plight with the same food, equally with others perfectly at ease. Even hogs, though prone to wallow in the mire in warm weather, are always pleased with a dry bed, and thrive best when kept clean.

BLOODY MURRAIN.

An intelligent young man informed the Editor a few days since, that a valuable steer belonging to his father, was cured of *bloody murrain*, (a disease that generally proves fatal,) by administering a decoction of Cedar berries and boughs. He was induced to make the experiment by reading in the papers a receipt prescribing a tea made of Cedar berries, but not finding the berries of sufficient quantity, the small boughs were used as a substitute. The cure was speedy and complete. Farmers will do well to bear this in mind.

American Rep.

PREPARATIONS FOR EARLY CROPS.

In such parts of the Union, where the ground is not at this time bound up with frost, continue to dig the quarters of your kitchen garden, first give such manure as they may require; laying them in high sloping ridges, to sweeten and improve by the frost, &c. more especially if the soil be of a stiff nature: by which method, its adhesion is destroyed, the pores are opened for the admission of the air, frost, rains and dews, all of which abounding with nitrous salts, contribute, in a high degree, towards its melioration and fertility; and besides a great quantity of ground thus prepared, can soon be levelled in the spring for sowing and planting; which if neglected, would require much time to dig in a proper manner, and at that period, when the throng of the business requires every advantage of previous preparation.

When the ground at this time is frozen so hard as not to be dug, which is generally the case in the middle and eastern states, you may carry manure into the different quarters, and spread it, repair fences, rub out and clean your seeds, prepare sheds, nails and twigs, for the wall and espalier trees, which are to be pruned in this and the next month; get all the garden tools in repair, and procure such as are wanting; provide from the woods a sufficient quantity

of pea rods, and poles for your Lima and other running beans; dress them and point them, so as to be ready for use when wanted.

Here it may be well to remark, that many people who neglect to provide themselves pea rods at this season, when it can be so conveniently done, are necessitated, when the hurry of the business overtakes them in the spring, to sow their peas and let them trail on the ground; in which situation they will never produce, especially, the tall growing kinds, one third as many as if they were properly rodded.

The various kinds of Early Hotspur Peas, will require rods from four to five feet high, the Marrowfat, Glory of England, White and Green Roundival, Spanish Morrotto, and other tall growing kinds, will require them to be from six to seven feet high, exclusive of the part to be inserted in the earth; they ought to be formed or dressed fan fassion, the lower ends pointed, for the ease of pushing them in the earth, and laid by, either under some shed, or in any convenient place till wanted; one set of rods will with care last for three years. The same kind of rods, that the tall growing peas require, will answer for the generality of running Kidney beans; the Lima beans require strong poles from eight to nine feet high.

If in this, and the next month, you neglect forwarding every thing that can be done, in and for the gardens, you will materially find the loss of such inattention, when the hurry and pressure of the spring business overtakes you. Every active and well inclined gardener will find abundant employment in the various departments of the garden at this season, and need not be idle, if disposed to be industrious, or to serve either himself or his employer.

KITCHEN GARDENING.

As every farmer is interested in the best method of cultivating a common kitchen garden; I have collected as much information on that subject as my means could furnish. I found that many farmers are in the habit of purchasing seeds from the people denominated Shakers; and I imagined that an account of the Shakers' method of cultivating the most useful plants of the kitchen garden, would be very acceptible.—In the annexed directions, I have embraced a course of operations which I received from Richard Treat, the oldest gardener at the Shaker village in New Lebanon, Columbia county, New York.

LETTUCE.

It should be sowed as early as it can be raked into the ground, for it cannot be injured by early frosts.—Dr Hammond sows a bed for early lettuce late in the preceding fall. It ought to be sowed in rows sixteen inches apart, between vacant rows intended for some other plant. For as the lettuce will soon be pulled out, other rows of later vegetables may occupy the whole bed.

RADISHES.

Should be sowed in drills, eight inches apart, the last week in

March. The beds should be made of horse manure fresh from the stables, well mulched with good garden mould. Often loosen the soil about them while growing and keep out the weeds.

ONIONS.

They should be sowed about the 28th of April, in drills sixteen inches apart, made very shallow, not exceeding half an inch in depth, and raked in lightly lengthwise of the drills. The beds having been well worked with thoroughly rotted manure, at least five inches deep, they will be up very uniformly in about fourteen days.

Hoe them as soon as they are just up sufficiently to be hoed carefully without injury. Let them be hoed six or seven times during the season.—The tops will fall about the 10th of August, but they will continue to grow until about the first week in September. They must not be pulled until the tops become dry; biennial, onions never produce seed until the second year.

Onions should always be sowed on the same beds; for experience has demonstrated, that the crops become better, after being raised on the same beds for many years in succession.

PARSNIPS.

They should be sowed about the 28th of April; but Dr. U. Gregory prefers the last week in March, and selects a dry sandy or loamy bed, which will admit of the earliest culture. He says parsnips become poisonous in damp ground. They should be sowed in drills, 20 inches apart, and three-fourths of an inch deep, and raked in lengthwise of the drills. The beds should be previously well worked and manured, and afterwards frequently hoed, which is all the care required.

BEETS AND CARROTS.

They should be sowed about the 28th of April, in drills three-fourths of inch deep, and twenty inches apart—if carrots, in drills but sixteen inches apart and half an inch deep, is about as well. The ground prepared and the seed raked in as for onions,

GARDEN PEAS.

They should be planted about the 28th of April, in drills by pairs, six inches apart, so that one row of bushes may serve for the pair of drills. There should then be four feet space from centre to centre, between the pairs of drills. The drills should be half an inch deep and the seed raked in lengthwise of the drills.

They should be hoed once, then bushed, and hoed once after being bushed. From this time, merely pull out the weeds.

GARDEN BEANS.

Should be planted about the middle of May, half an inch deep, in rows. The rows for bush beans should be three feet apart, with the hills in a row three feet from each other.

They should be hoed three times before the flowering time; but must never be hoed when wet with dew or rain.

MELONS, CUCUMBERS AND SQUASHES.

They should be planted about the middle of May; cucumbers for pickling may be planted the middle of June. The hills may be three

or four feet apart.—The ground should be as well prepared as for onions. And they must be hoed three times before the time for the vines to run. Afterwards pull out the weeds.

HEDGING.

Pruning and after management of hedges, by R. Somerville.

There is perhaps, no part of the subject upon which a greater contrariety of opinion at present prevails, than the age at which the pruning of hedges ought to commence, the manner of that pruning, or the season of the year, at which it may be given with the greatest possible advantage, and the least risk; the practice with some is to prune from the first year, not only the lateral branches, but the tops also, and give as a reason, that cutting off the extremities of the shoots contributes to the thickening of the hedge, by making them push out a great number of new ones.—The fallacy of this argument, and the mischief with which the practice is attended, we shall elsewhere have occasion to notice.—As to the manner of pruning, or the form of the hedge, these seem, with many, to be matters of indifference, no attention being paid to dressing them in such a way as to have them broad at the bottom, and tapering gradually towards the top, many of them being not only of one width from top to bottom, and not a few much heavier and broader above than they are below; it is obvious that such hedghes can neither look well, nor be useful.—The season at which they are trimmed is, in many instances, an improper one, for in place of choosing that time when the plants are least in danger of suffering from an effusion of their juices, which is either at a late period in the autumn, or very early in the spring, the pruning is given in the summer season, when vegetation is in its prime, and the plants are full of juices; the check and injury they must receive from having the whole of their extremities cut off at that period, may well be conceived.

In speaking of the treatment of hedge plants before they are put into the ground, notice has been taken of the necessity of preserving the roots as much as possible; and at the same time shortening the tops; this last operation has two good effects; for by curtailing the top and branches, the roots have less to nourish; and by leaving only two or three inches of the top above ground, in place of growing up with a single stem, it sends out two or three; and as these strike out from the plant so near the earth, each of them has the same effect, and strengthens the hedge as much as the original stem would have done by itself, with this addition, that in place of one prop or support, the hedge will have three or four. After this first pruning, however, no hedge should be touched, or at least very gently, for some years; from an inattention to this circumstance, and the injudicious application of the knife or shears, at an early period, many young hedges are rendered useless, which, under different treatment, would have made excellent fences, with one half the trouble that was required to destroy them. The practice of

cutting over the tops yearly, which is done with a view to render the hedge thicker and more perfect, is one of these mistakes which we would naturally have supposed common sense and observation would have sooner corrected; the effect produced being in almost every instance, the very reverse of what was intended: shortening the main stem of a thorn or any other plant, makes it brush out a number of small stems immediately at the place where it has been cut; and if this operation is repeated once or twice a year, every one of these is again subdivided as it were, by sending out more branches; thus in a course of years, during which, the hedge makes very small progress upwards, if it be examined, instead of being found to consist of strong vigorous plants, with a good main trunk, each reaching from top to bottom of the hedge, and a sufficient number of lateral branches throughout the whole length of it, it will be found, by such repeated cuttings, in the same stunted situation as certain young trees and shrubs, that are frequently cropped by sheep or cattle. From the repeated crops of young shoots, which the tops send out after every clipping, and the great quantity of nourishment necessary to support such additional numbers, the lateral shoots at the bottom, upon the strength and numbers of which the value of the hedge in a great measure depends, are stinted in their growth, and soon die: the hedge, of course, becomes open and naked at the bottom, and consequently useless as a fence. Where a hedge has been thus ruined, there is no remedy but cutting it over, close by the ground: this will immediately produce a number of healthy, vigorous, upright stems, which, under proper management, will soon form a good fence.

From the first year of planting, till the hedge has risen to the height of five or six feet, the main stems ought to be left untouched, and the pruning confined solely to the side branches, leaving those next the root pretty long, and gradually tapering towards the top: this pruning of the side branches will make them send out many new shoots from their extremities, which, by repeated trimmings, will become so thick as to fill up every interstice from top to bottom of the hedge; while the main stems, by being left untouched, continue their growth upward, till they arrive at the necessary height; when they may have their extremities cut off with perfect safety. When a hedge has attained the wished for height, all that is requisite afterwards, is regular switchings with a hedge-bill, preserving it pretty broad at bottom, and drawing it gradually to a point at top; this form of a hedge is pleasant to the eye, is well calculated to stand the weather, and by being thus above, the nourishment that would have been wasted in supporting a thick, bushy, overgrown top, is retained by the branches at the bottom, which are thereby strengthened, and their numbers considerably increased; while the trunk, by having no more exertion to make in an upward direction, becomes every year stronger and thicker. —A hedge of this sort in full leaf has the appearance of a solid wall; and when viewed after the leaves are shed, presents to the eye a set of massy growing piles, so strong and formidable as to bid defiance to any attempts that may be made to break through them.

FROM THE AMERICAN FARMER.

THE FARMER.

Dear Sir: From communications in the Farmer, I discover that the republication by you, the 25th ultimo, of a letter from the Rev. R. C. Perly ,of New Rowley, Mass. to the editor of the New England Farmer, has brought to exposition a diversity of opinion upon a very important and interesting question among farmers; I mean the advantage of *cob meal* in keeping and fattening cattle.

Possessing a little experience in this matter, I conceive it proper to throw my mite into the scale, and hope it may lead others to similar experiments, and a like communication of the result. If, as I conceive, the use of cob meal forms an important item in the economy of fattening cattle, it is time the attention of farmers was directed to it. Having attached to a mill in my possession a machine for breaking plaister, cobs &c. I was led to various experiments with a view of ascertaining, if practicable, the relative value of the cob with the corn it produces. I was well aware of the difficulty of making *any experiment*, connected with our profession, that would not still leave an opening for scepticism; and therefore determined to vary and repeat, until at least my own mind was perfectly satisfied. Knowing that distillation generally afforded the surest means of ascertaining that any matter contains nutritive, or saccharine properties, I had ground and taken to my distillery, several bushels of cobs. They were scalded [as we do the meal of the grain,] with boiling water; then mingled with cold water and yeast. From the rapid fermentation which soon succeeded, I was fully satisfied that there was present saccharine matter. The next morning the vinous fermentations ceased and the acetous commenced, which confirmed and fixed all my impressions. The valuable properties being so destroyed by the second fermentation, I thought it impolitic to risk the burning of my stills, and the beer was thrown out.

The only question now remaining to be solved in my mind was, whether the digestive organs of animals were sufficiently strong to extract from the cob its nutritive properties. To ascertain this, I commenced feeding my hogs with the meal produced by grinding the cob and corn together, instead of the corn exclusively, and soon discovered that the cob destroyed with them the good effects of the meal; that their stomachs were not sufficiently strong to war with the woody parts of the cob; that they sickened and pined under it. I next made the experiment with my horses, and was soon driven to the same deduction. I discovered that its distending and nutritive, was counteracted by this indigestible properties. By this time my opinion began to vacillate; stubborn facts presented themselves to my mind, and my favorite theory stood before me "like the baseless fabric of a vision." But there was one more experiment to be made, and upon that depended much; it was the average of my hopes: it was either to knock in the head altogether my speculations, or to convince me of the utility of feeding the cob to our horned cattle at least. I was in the habit of giving, at

the time the experiment was made, to some beef cattle then on hand, about five bushels of corn meal per day ; with this quantity I effected my object of keeping them in the state they were received from the grass. They were not fattening at the time. I changed from five bushels of *fine meal* per day, to five bushels of *cob and grain meal.* There was not the slightest perceptible difference in the keep of the cattle, after continuing this some time. I then commenced giving them five bushels of fine meal again, mingled with the cob, yielded by that quantity. My cattle immediately commenced fattening, and gave me assurances in their slick hair, sprightly eyes, and frolicking disposition, that with them there was perfect digestion, and that they were in a healthy and thriving state. It is worthy of remark and particular notice, that while I fed with cob and corn meal, I never discovered one of them cloyed for a moment. They ate with the greatest avidity, at all times what was given them.

These experiments, thus carefully made, and their effects investigated by myself, have forced upon me this conclusion : that *cob and corn meal is too heating and indigestible for hogs or horses—but is worthy of the highest consideration as a food for horned cattle.*

WM. M. BARTON.

POLITICAL ECONOMY.

Production, use, and consumption defined.—The results of production are products. Products are not *consumed*, while in *use*; they are consumed only when *by* use they are *annihilated.*

Wheat and wool are products. One is used for bread, and consumed in food ; the other is used for clothing.

Houses and household furniture are products. One is used for shelter, and the other is used for convenience.

The improvements of land are products, and used for profit or pleasure.—In short, all things of a material nature, adapted to art and labour, to consumption, use or enjoyment, are products of industry and the results of production.

Productive industry refined.—Productive industry comprehends the exercise of talent, intelligence, invention, art, skill, dexterity, and labour, either in production, as in agriculture, the fisheries, manufactures, and the mechanic arts, or in the augmentation in the value of products, by the distribution and exchange of the transportable and circulating surplus, as in commerce.

The power of productive industry is measured by the quantities, of its products in their relation to wealth, and not by their quantities in relation to value ; for the value of a product is increased by diminshing its relative quantity, whereas wealth is increased by the augmentation of a product.

Distinction between productive and unproductive labour.—It is not easy in all cases to draw a distinct line between productive and unpreductive labour, nor is it of any practical importance that it should be done.

The following distinction may however be made between them. In private service, all labonr, by which the exchangeable value of *material* objects is augmented, is productive labour; but that which adds nothing to the exchangeable value of material objects, notwithstanding it may be useful in other relations, is called unproductive labour.

In public service, all labour, which is employed to augment the utility of those objects, which come under the head of public property, is productive labour; whereas all other public labours, however important they may be to the public welfare, are nevertheless unproductive labours, in their relation to the production of wealth.

Objects of production.—The objects of production are either perishable, and for immediate consumption; or more durable, and for present and future use and consumption. Those of the first kind are principally of agriculture and the fisheries; and those of the second, are mostly of manufacture and the machanic arts. From the consumable products of this first department of industry, man principally derives his subsistence; in the more durable products of the second, he chiefly accumulates his wealth.

Distinction between manufacture and the mechanic arts.—By the mechanic arts, is understood the various arts, in which the operations are *manually* performed by the aid of tools and machines of little cost, and such as are within the means of the mechanic generally to procure for himself, without the aid of the capitalist.

By manufacture, is understood those great productive operations of art, which cannot be effected without the assistance of large capitals; but by the employment of which, under the direction of skill, the powers of nature are brought through the medium of machinery to the aid of human labour, and, made to perform its functions to such an extent, as greatly to augment production. And by means of this in the saving of labour, the costs of production are very considerably reduced, and the public supplied with the products, at a price reduced in a corresponding proportion.

Productive industry in its relation to the public welfare.—The more the national industry is diversified, and the more the number of its productive employments is multiplied, the greater is the demand for the products of labour in each employment.

This increases the profits of industry; the profits of industry increase the demand for labour; this raises the wages of labour, and the labour of the country is thereby more fully drawn into action.

Each successive new employment tends to increase the profits of existing employments. This it does in two ways; first, by diminishing competition in these employments, and, secondly, by furnishing additional consumers for their products. Thus, while the new employments augment the aggregate profits of the others, they diminish the number to participate in them, and cause thereby a much greater share of profit to go to each individual attached to them.

In this country, it is obvious that industry is not so productive,

as it would become by being divided into a greater number of different employments. At present, about eight tenths of our population are attached to agriculture, while five tenths would probably produce an abundant supply for both home and foreign demand for consumption, were there any profitable employment for the other three tenths. The fact of so large a portion of our labour being unemployed, or only partially employed, leads to the question to be determined by government, whether it would not be promotive of national prosperity to encourage the production of every commodity, whatsoever it may be, which we possess as great natural advantages for producing, as the nations do from whom we now import the commodity. Any additional labour, which might be called into action by adequate encouragements to the establishment of our new branches of industry, would, besides benefiting all the present branches, produce a gain for the nation to the whole value of their labour, be it more or less.—*U. S. L. Gaz.*

BAILY'S HORSE IRON-MILL.

Hartford, (*Con.*) October 25.

Among the many valuable inventions which our inventive countrymen are constantly producing, Baily's patent cast iron grist-mill claims a conspicuous rank. We have intended, some time since, to have spoken of this mill, and should be doing injustice to our own feelings, as well as to the worthy and ingenious mechanic who invented it, were we longer to delay the expression of our thorough conviction of its utility and usefulness. Nor, in thus expressing ourselves, are we alone. Our opinion of its merits is in accordance with that of many gentlemen who have seen it, and witnessed its operation. It is, indeed, an invaluable invention. To farmers and planters and of the south particularly, it must be a great desideratum : to the farmers, distillers, &c. to the north and west, it will be valuable, and the public generally will be benefited by its introduction.

Our attention has been called to this subject, at this time, by an article in the National Intelligencer of the 15th inst requesting information as to the power, performance, and cost of these machines, and the address of the person who constructs them. Mr. Baily, the inventor and patentee, is a resident of this city. We pointed him to the paragraph in the Intelligencer, and, in answer to the queries therein contained, he has authorized us to say : that his mills have been tested by grinding wheat, rye and corn, as well as most kinds of provender; corn in the ear, oil cake, &c. and its works pronounced, by experienced millers, to be equal to that produced by common millstones ; one horse will grind ten bushels of wheat or rye per hour, sufficiently fine for flour : the cost of the mill, with the machinery for a horse to work it, will be from 250 to 300 dolls.

The inventor is now busily engaged upon his mills and will soon be able to furnish them to order, letters upon the subject, addressed to Henry Baily, Hardford, Connecticut, will be duly attended to.

Mercury.

TABLES OF CANALS

Existing or begun, or of which the execution has been determined on, and of the rivers improved by locks, within the United States.—1825.

A. New Hampshire—Merrimack River, 14 locks, 90 feet in length and 10 in breadth, cost $ 116,000

B. Massachusetts—Middlesex Canal, 27 miles in length, 30 feet in breadth, depth 3 feet, 104 feet ascent, 62 feet descent; 20 locks, 85 feet long and 10 wide; began 1790 and finished 1808, $ 470,000

C. Vermont, New Hamphire, Massachusetts and Connecticut,—Connecticut River.

D. Connecticut, Farmington Canal.

E. F. New York—Erie, or Western Canal, 362 miles in length, 40 in breadth, 4 feet in depth, with 619 feet of an ascent and 62 descent; locks 90 feet in length, and 14 in breadth; began in 1817 and finished in 1825. Champlain, or Northern Canal, 61 miles long, 40 feet wide, 4 feet deep, with 143 feet ascent and 54 descent; locks 90 feet long and 14 wide: began in 1818, finished 1820.
$ 10,124,000

G. New York—Oswego River.

H. New York—Seneca River.

I. New Jersey—Delaware and Hudson Canal.

K. New Jersey—Morris Canal 75½ miles in length, 32 feet wide and 4 deep, with ascent of 910 feet and a descent of 730: locks 70 feet long and 9 in breadth, est. $ 800,000

L. New Jersey—Raritan and Delaware Canal, 29 miles long, 60 feet in breadth and 8 in depth; 48 feet ascent and descent 48.

M. Pennsylvania—Delaware River, 30 miles long, with an ascent of 165 feet.

N. Pennsylvania—Lehigh River, 42½ miles long, with 360 feet ascent, and 8 locks 30 feet in breadth: commenced in 1818, and finished in 1822.

O. Pennsylvania—Schuylkill River, in length 110 miles, with an ascent of 610 feet.

P. Pennsylvania—Union Canal, 71 miles in length, 36 feet in breadth and 4 in depth, with 300 feet of an ascent and 210 descent; locks 79 in length and in breadth 9; and to be finished in 1827, est.
$ 900,000

Q. Pennsylvania—Susquehanna River.

R. Pennsylvania—Conestoga River, 18 miles in length, est.
$ 53,540

S. Delaware—Chesapeake and Delaware Canal, 14 miles long, 60 feet in breadth and 8 in depth, with an ascent of 8 feet and 6 descent; locks 100 feet in length and 22 in breadth: was commenced in 1824, and will be finished in 1828, est. $ 1,200,000

T. Maryland—Maryland Canal, 9 1-2 miles in length, 30 feet in width and 3 in depth, with 59 feet ascent, and 8 locks 100 feet long and 12 wide. $ 250,000

U Maryland and Virginia—Potomac River, 182 miles long,

with an ascent of 521 feet, and 8 locks 100 feet long and 12 to 15 feet in breadth. $ 650,000

V. Virginia—Shenandoah River, with 5 locks 100 feet long and 12 wide. $ 444,652

W. Virginia—James' River.

X. Virginia—Appomattox River.

Y. Virginia and North Carolina—Dismal Swamp Canal, 22 miles long, 32 feet wide and 5½ deep; locks 96 feet long, 18 wide. $ 610,000

Z. North Carolina—Cape Fear River.

AA. North Carolina—Neuse and Beanfort.

BB. South Carolina—Santee and Cooper Rivers Canal, 22 miles long, 35 feet in breadth, and 4 in depth, with an ascent of 35 feet and 63 descent; locks 60 feet long and 10 wide. $ 650,667

CC. Louisiana—Canals Carondelet.

DD. do. do. Marigny.

EE. do. do. Lafourche.

FF. do. do. Plaquemine.

GG. Ohio—Ohio Canal, 306¼ miles long, 40 feet wide and 4 deep; with 638 feet ascent and 547 descent, locks 90 feet long and 14 wide; was commenced in 1825, est. $ 2,800,900

HH. Kentucky—Canal round the Falls of Ohio.

NOTES.

A. & B.—These two navigations together, form a communication from Boston to Concord, the capital of New Hampshire, a distance of 70 miles. Its principal use is to bring the timber and the superb granite from the banks of the river to Charlestown and Boston. A large quantity of this stone is worked in the state prison at Concord, and sent to Boston, whence it is sometimes shipped to different parts of the U. States. Some of it has been used in several buildings in Baltimore, and a church is said to have been built of it in Charleston, S. C.

C. The navigation of the Connecticut River is improved in several places within these states, by short canals, with locks round the different falls.

E. The ascent and descent here given for this canal, are thus divided:

	dist.	*asc't. ft.*	*desc't. ft.*
From Albany to Rome summit, miles	425		
Rome summit level,	69		
To Onondaga creek,			26
To Nine Mile creek,		17	
Camillus summit level,	12		36
To level of Cayuga marshes,			
To near Rochester,		126	
Rochester and Lockport level,	65½		
Ascent at Lockport,		61	
Lockport and L. Erie summit level	—	—	—
Total,		619	62

The difference is 557 feet, while the elevation of Lake Erie above

the Hudson is stated to be 565 feet. This want of agreement is accounted for by the inclination of the canal itself.

The line of freight boats go regularly 60 miles and the packets 80 miles in 24 hours, travelling day and night, with scarcely any stoppages.—From Albany to Schenectady however, a distance of 28 miles, in which are 27 locks is considered a good day's journey.

Besides the main line of canal, there are several lateral cuts of from ¼ to 2 miles in length, with locks.

F. This distance includes part of the Hudson river, made navigable by dams. Part of the northern section of the canal is formed in the bed of Wood creek, which has been improved for the purpose, and a tow path made on its bank. During the present year, (1825) preparations have been made to continue the canal from Fort Edward to Fort Miller, a part of the line where the river has been hitherto used, to the frequent delay and inconvenience of the navigation. The principal article carried on this canal, is lumber of different kinds, from the shores of Lake Champlain. A raft is frequently from a quarter to half a mile in length, and is towed from four to seven miles a day by two oxen. It can easily be taken to convenient pieces to pass the locks. From the injury done to the locks by these rafts, double toll is charged on lumber thus carried to that in boats; on which account most of the plank and other sawed stuff is carried in boats.

The two cost New York to January 1, 1825, $9,324,000. The tolls received to the same time amounted to 495,000, which leaves their actual cost to the state to this time 8,829,000.—The sum of 800,000 then estimated as necessary to complete them, and to satisfy all claims for damages, being added, makes the gross amount of $10,124,000 as above stated.

The tolls for the years 1825 are more than sufficient to pay the interest of the debt. There is besides, an annual fund of about $320,000 arising from duty on salt, and tax on auctions appropriated to this object.

In 1824, 20,000 boats passed the junction of the two canals near Albany.

Price of transportation, (including tolls) May 1825. From Albany to Lockport, 331 miles, 87½ cents per cwt. for merchandize, which pay 3 cents per ton per mile toll, or 51 1-2 cents per cwt. for this distance. Carriage alone, 2 cents per ton per mile.

I & K. These two canals are principly intended to supply New York and many iron works in New Jersey with Anthracite coal: the first from the Lackawaxen, and the second from the Lehigh river. The funds for the Morris canal are subscribed. It is proposed to overcome part of the ascent and descent of this canal, by inclined planes.

L. To form an inland navigation for sloops between Philadelphia and New York; also to supply the latter city with Lehigh coal by means of the navigable feeder which is to be taken from the Delaware nearly opposite to the mouth of the Lehigh. Feeder to be 40 feet wide, 5 feet deep—fall 117 feet.

M. The Delaware is ascended by boats to Easton, and some dis-

tance above. Considerable sums have been expended on this river, and several locks built; but they are nearly if not entirely useless, not being in repair. The natural navigation of the river has been injured by wing dams which have been authorized by the legislature for the supply of private mills.

N. An excellent descending navigation only, formed by the kind of improvement called by engineers, *flushing*. To supply coal to the city of Philadelphia and elsewhere, the arks which carry it, are broken up on their arrival at tide, and sold for lumber. The greatest curiosity in the works of this river, consists in the hydrostatic locks, the invention of the director, Mr. White, who by the simple and ingenious application of one of the primary laws of hydrostatics, has easily overcome a difficulty which has baffled the efforts of preceding engineers for centuries.

O. The Schuylkill has a good slack water navigation the whole distance, partly effected by locks & dams, and partly by lateral canals. Its principal object is to supply Philadelphia with coal, which is taken from the same extensive bed as that which is carried down the Lehigh.

P. Intended to draw the trade of the Susquehanna to Philadelphia. A short tunnel is now making on this canal, the only one for the purpose in the United States.

Q. The navigation of this river has been particularly improved, and boats ascend without much difficulty from Columbia a considerable distance up the river. Between Columbia and the tide, the current is so rapid that boats seldom ascend it. The descending trade is carried on during freshets, in arks, from points much higher up the principal streams and its branches, even from within the state of New York. The canal and locks round the Conewago falls, are the principal works on this river within the state of Pennsylvania.

Interesting experiments are now making on this river by steam boats, one of which is of sheet iron.

R. Preparations are made for improving this river by dams and locks. A company has contracted with Mr. Hamil to make a steamboat navigation from the city of Lancaster to the Susquehanna river. The work to be completed by the 4th of July, 1827. There are to be 9 dams and 9 locks, averaging about 7 feet lift each.

S. To form a sloop navigation between the two bays whose name it bears. The deep cut through the ridge (76 feet) will, in a distance of 4 miles, require 3,000,000 cubic yards; of excavation, and will form the greatest work of the kind known, with the exception of the cut of Huchuetocs, near the city of Mexico, which is stated to be at one place 196 feet deep and 360 feet broad at the top. (*Poinsett's travels.*)

T. This canal is made to pass the arks and rafts descending the Susquehanna round the most dangerous part of the river. It extends from the tide to about half a mile from the Pennsylvania line. It was intended to carry it further, but at the time a charter from this latter state could not be obtained. There are on this canal inclined planes, used when there is a press of business to pass the raft down

more expeditiously than by going through the locks, and without the inconvenience of taking them to pieces.

U. The Potomac river is improved from the tide in the District of Columbia to Cumberland, so as to afford a tolerable navigation when the water is at a moderate stage. There are 5 locks around the Great Falls, and 3 at the Little Falls with short canals.

Y. This canal extends from Deep Creek on the Southern Branch of Elizabeth River, in Virginia, about 10 miles from Norfolk to Joyce's creek at the mouth of Pasquetank river, which empties into Albemarle's Sound in North Carolina—cost to present time (1825) 460,000 dollars—additional required to complete it 150,000 dollars. It is proposed to increase the depth of the canal to 6 or 7 feet—the locks, 5 in number, are calculated for vessels of 7 feet draught.

CC &c. These four canals are short thorough cut without locks.

GG. Eighty-eight miles of this canal are under contract the present year—to extend from the mouth of the Scioto on the Ohio, by Tuscarawas to the mouth of the Cayuhoga on Lake Erie—two summit levels.

PRODUCTS OF BRAZIL.

From the Journal of a young gentleman, engaged in commercial pursuits.

And here, since I am in a *vegetable humor*, I will memorandum some other *new aquaintances*, which were found every where about the country, as well as in the Botanic Garden. To a lover of nature, there is nothing in a strange country so interesting as its vegetable tribes: and here scarce a tree, or bush, or spear of grass, resemble those of New England. To be sure these things would be more interesting to a botanist, but it does not follow of course that one who has no science in the subject shall be prohibited from "considering the lilly of the field."

The *Palm tree*, in many of its varieties, is seen about Rio Janeiro. It is unnecessary to describe these to any person who has seen a roll of French *paper hangings*, in most of which the palm occupies a conspicuous place. The trunk of all the tribes of the palm tree, which includes the cocoa-nut in its various shapes, in an assemblage of a great quantity of fibres matted together, and does not resemble the wood of any other tree whatever. I have seen many of the cocoa-nut trees of as great diameter as the largest pines in our country. It has no branches, except at the top, and frequently grows from fifty to sixty feet in height. One kind of the cocoa-nut is as large as a child's head;—another which grows in clusters, is not bigger than a walnut,—and there is a great variety besides these.

The *Plantain* and *Banana*, are called species of the Palm, but nothing can be more dissimilar than those fruits and the cocoa-nut, or either of them and the *date*, which is also classed with the palms. The foliage of all these differ, also, and there appears nothing so distinctly to establish a relationship as the fibrous conformation of their bodies. The Banana is a fruit in shape like a sausage, and about the same size; it grows in clusters upon a stalk, one of which is as much as a man can carry. A tough husk opens to a rich pulp, some-

what like the muskmelon in flavour; but more luscious and melting: has no seed. The tree of the Plantain is exactly the same with the Banana; they are seldom more than six or eight inches diameter in the trunk, and about as tall as an apple tree. The fruit of the Plantain differs a little from the Banana, and is not quite so much esteemed in Brazil; though I am told it comes to greater perfection and has a preference in other countries.

The *Sago*, of which I saw a young tree in the Botanic Garden, is likewise classed with the palms. The leaf differs entirely from that of the Banana, resembling the branch of a large brake that is found in New England, while the leaf of the Banana is something like Indian corn, but it is frequently six or eight feet long, by ten or twelve inches in width; it is as soft as satin and very beautiful.

The *Mamee Apple*, (which is the fruit called the *papayo*, in St. Pierre's pathetic little story of Paul and Virginia) is a delicious article. The tree appears like a huge weed, and its growth is very rapid. The trunk is generally 6 or 8 inches in diameter near the ground, and it grows from 15 to 30 feet high, without branches, or any foliage except a tuft of leaves on the very top, resembling those of the bread-fruit. The fruit resembles what we call the Nutmeg-muskmelon, and hangs round the tree, directly under the tuft of leaves, in a circle, and appears as though they were artificially placed there. This apple is yellow as gold, when ripe.—A hard rind covers a pulp like the muskmelon, and the seeds are placed similarly.

The *Guava* resembles the Quince in some measure, though the seeds are placed in it like the Mamee. I did not see the tree, though it is very abundant in some parts of the country. A coarse sort of sweetmeat made of the Guava, is a considerable article of merchandize. Guava Jelly is much esteemed every where; that brought from the West Indies, is much the best.

The *Coffee-tree*, the most important of any in Brazil, is cultivated to a great extent, and vast quantities of coffee are annually shipped from Rio. It is planted to ornament walks and gardens, as well as on large plantations, and it is frequently seen wild in the hedges, along the high way. It is a beautiful tree, or rather a shrub; they call it here "the Laurel of Brazil," and a company of soldiers is sometimes seen marching through the streets, each with a sprig of coffee in his cap. The Thorn of New England, which bears a red plumb, resembles the coffee tree, and the berry of the latter is red, like the thorn plumb, and about the same size and shape; its small white blossom is also similar: the leaf is more like the beach. The young scions are transplanted when two or three feet high, cultivated carefully as a field of corn, but do not produce much for the first three years. It grows 15 or 20 feet high, but the tops are generally cut to make it branch and bear better. It produces two crops in a year; though the blossom and ripe berry are often seen together on the same tree; and it is gathered and brought to market at all seasons of the year.

The *Cotton-tree*.—I saw no plantations of Cotton, though it is cultivated to considerable extent in some parts of Brazil. Among the hedges and thickets, a small tree, resembling our little dwarf

maple, grows wild, and produces cotton of a tolerable staple. Whether this is the kind cultivated by the planters, I am unable to say. The pod which contains the cotton and the seed, is about the size of an egg, and is precisely like that of the cotton plant in our southern States. Its large yellow blossom, and ripe, opening pod, were seen together on the same tree.

The *Mango tree* is very common for shade and ornament about the gardens and grounds of Rio.—I am inclined to think this is the same as the Mangrove tree of India. It is low, with immense branches, and an exuberance of foliage I have never seen equalled. The leaf resembles the chesnut of our country, as also the blossom; and like the chesnut in bloom, fairly perfumes the whole atmosphere around. There is a fruit tree here called the Mango, which is said to be excellent; but whether this tree produces it I am unable to say, I am inclined to think it does not.

It is only in an awkward manner I attempted to *pay my respects* to some of the most distinguished individuals among the Rio Vegetables.—To give merely a catalogue of *all their names*, (it is doubtful whether that has ever yet been done by any person) would fill half the pages of the Log-Book.

THE COCOA TREE.

This is a small tree, with pale bright green leaves, somewhat resembling in shape those of the orange tree. The leaves are picked from the tree three or four times a year, and dried in the shade; then packed in small baskets. The natives in several parts of Peru, chew these leaves, particularly in the mining districts, when at work in the mines or travelling; and such is the substance they derive from them, they frequently take no food for four or five days, although they are constantly working. I have often been assured by them, that whilst they have a good supply of cocoa they feel neither hunger, thirst, nor fatigue, and that without impairing their health they can remain eight or ten days and nights without sleep. The leaves are almost insipid; but when a small quantity of lime is mixed with them, they have a very agreeable sweet taste. The natives put a few of the leaves in their mouths, and when they become moist, they add a little lime or ashes of the molle to them by means of a small stick, taking care not to touch the lips or the teeth; when the taste of the cocoa diminishes, a small quantity of lime or ashes is added, until the taste disappears, and then the leaves are replaced with fresh ones. They generally carry with them a small leather pouch containing cocoa, and a small calabash holding lime or ashes; and one of these men will undertake to convey letters to Lima, a distance of a hundred leagues, without any other provision. On such occasions they are called *chasquis* or *chasqueras*, and this epithet is also given to different conductors of the mails. The Incas had men stationed on the principal roads for the transmission of any article belonging to the Incas, who, according to the quality of the road, had to carry it to different distances, some one league, others two and others three. These men are continually employed,

and when one of them arrived, he delivered to one in waiting whatever he was charged with, and gave him the watchword, chasqui; this man ran immediately to the next post, delivered his charge, and repeated chasqui, and then remained to rest until the arrival of another. By these means the court of the Incas was supplied with fresh fish from the sea. [*Stevenson's South America.*

CASHMERE.

The shawls of Cashmere supply the whole civilized world. It is said they are manufactured at 16,000 looms, each of which gives employment to two or three men. The work is so unconceivably tedious, by which the fine patterns are produced, that not more than a quarter of an inch is completed in a whole day. It is not unusual to find a loom occupied with one shawl for an entire year. The wool of which they are made is brought from Thibet, consisting of the inside coat or down of sheep peculiar to that mountainous region. The wool is at first of a grey colour, but being bleached, it becomes a beautiful white, and takes the various dyes readily when spun. It is a curious fact that two borders are attached to the shawls after fabrication, so delicately, that no eye can detect the place of junction. The valley of Cashmere has been celebrated from the most early times for its beauty. Nothing can exceed ist romantic advantages from nature. In the centre of a plain near the lake of Cashmere, studded with little isles, were the gardens and pavilions of the Mogul Emperor, where the nobles made annual visits to feast on the charms of this lovely valley, and to choose wives from among the beautiful girls of Cashmere; whose delicacy of complexion and symmetry of form were only surpassed by the elegant turn of their minds, the liveliness of their dispositions, and the sweetness of their tempers.

Irish straw plaits, in imitation of the Leghorn.

The committee appointed by the Royal Dublin Society, having called upon some of the most eminent and respectable importers and venders of Leghorn hats, to assist with their judgment in the adjudicating of premiums, were favoured with the attendance of several, who concurred with the committee in adjudging four prizes of 20 pounds, 15 pounds, 10 pounds and 5 pounds. A report read at the meeting states, that 'The extraordinary improvement evinced in the manufacture of those articles within three years, and the excellence to which they have now attained, induce your committee to be of opinion that, if it is steadily persevered in, Ireland will very shortly be fully adequate to compete with Italy in that article, in which opinion they feel quite warranted by those of two of the respectable reporters who assisted in the adjudication of the premiums, who declared with respect to the six hats which have obtained the first premium 'that if they were put in a case with Leghorn hats, as imported here, there was not an individual in the trade in town, who could distinguish them from those of the best de-

scription imported from Leghorn.' They further declared with respect to other hats contained in another parcel, which obtained the third premium 'that if it was taken to London, it would be good value for five pounds, as such articles rate new in the market.' The committee beg leave further to report, that in their opinion the *Cynosurus, Cristatus* (vulgo *Traneen*) is not the material best adapted for this manufacture, its nature being too hard and wiry, and generally not even in colour; the straw of rye (*Secale Serale*) is in their opinion much preferrable; and further that one of the hats which obtained the first premium, composed of sweet-scented Vernal Grass (*Anthoxanthum Odoratum*) appears to be superior to any other produced.' [*Dublin Correspondent.*

OF WATERING GARDENS.

I have often heard it said that the artificial watering of garden vegetables in dry weather would cause them to wither and die sooner than they would by the effects of drought alone. I was at a loss to account for this; but I had heard it so often repeated that I was compelled to believe in the existence of the fact. Why, I asked myself, was irrigation, so useful in other countries, hurtful in this?—On the sides and at the foot of the Pyrennees, both in France and Spain, where streams flowing from that mountain can be directed and spread at pleasure, every thing is enriched and brought forward by irrigation. Even wheat fields have water conducted in numerous rills through them, and the product is increased nearly one half by these means. In China, water is raised by manuel efforts, and conducted with much labour, into every field, for in China, little is done by brute animals (I mean four legged brutes,) and machinery, yet this half savage and illiterate nation understand agriculture, and if it was not somewhat of a digression, I could here show that the little advanced and stationary condition of science and civilization in China, is owing to their want of an alphabet. Without an alphabet to a language no man can have much learning, and the great bulk of the nation will have none at all. But as to irrigation. In Pennsylvania, and in Cohee, Virginia, (as distinguished from Tuckahoe, Va.) meadows are produced in high land, if the farmer can conduct a rill of water still higher. No matter what the original aridity and sterility may be if the furrow of a plough can run round the hill to conduct the water, all below becomes fertilization and abundance. What, thought I, is it that makes Georgia gardens an exception, to all these principles and practices? As I was not to be contented with the simple assertion of the fact, I determined to know the *why* and the *wherefore*—believing indeed at the outset that I should be in the situation of those philosophers who puzzle their brains to discover the causes of things which never had existence.

A few buckets of water applied at different times and under different circumstances, taught me all that it was necessary to know. I found that if water was too cold, when applied, it would often do harm, also if applied under the glare of a hot sun, or in the evening

when the vegetables were hot from the day's exposure, or if applied to the root of the plant and not to the leaves and branches.—Avoiding all these is the only other way of proceeding I found to be the right way.

Draw and let the water stand in tubs and troughs some hours before being used, that it may acquire the temperature of a benignant shower of rain, and late in the evening, after the influence of the sun is gone, after a cooling dew has fallen, after the vegetables have acquired their natural and healthy temperature, apply water from a watering pot, whose nozzle is covered with a dilated cap, full of perforations, that diffuses the water in imitation of a natural shower, and the influence on vegetables and roots of every variety and species, will be most kindly. In the absence of rain, while other gardens have been burnt up, mine has been kept in a thriving, improving state; and with little labour I have obtained an abundance of every garden production.—If it rains, I let it rain; if it does not, I have no occasion to murmur, as too many of my brother farmers do, at the dispensations of Providence. Heaven has bounteously bestowed flowing streams on this land and keeps inexhaustible reservoirs of water in its bosom, and though he has doomed man to earn his bread by the sweat of his brow, he has endowed him with intelligence to apply his labour usefully. There are a thousand ways of raising water; a dozen different modes by wheels. I shall on a future occasion treat of some of these; at present I would only say that in watering gardens, a portable double forcing pump, which will cost twenty-five dollars, is an excellent machine, and is useful also to throw water over houses and yards to cool the atmosphere, or extinguish fires.—But, as I have before said, a watering pot answers very well for gardens. *An Ocmulgee Farmer.*

FROM THE FARMER'S ASSISTANT.

INDIGO.

Three species of this plant are cultivated; the Wild (*Indigofera argentea*) the Guatimala (*dispermea*) and the French (*tinctoria.*) The first-mentioned is the hardiest plant and affords the best blue; but one of the other two species is commonly prefered, as being more productive; and of these, the French surpasses the Guatimala in quantity, but yields to it in fineness of grain, and beauty of colour.

Indigo is a tap-rooted plant, will endure severe drought, and is unsuitable for wet lands. In the West Indies, it may be raised in poor dry soils; but to most advantage in those which are rich. In the southern States, however, it requires a good soil. The more southerly parts of our territory are tolerably well adapted for the culture of this plant; but it is more productive farther to the South, particularly in many of the West India Islands, where it is indigenous. A bushel of the seed of this plant is sufficient for five acres.

The ground is first to be properly mellowed with the plough, and then harrowed, when the seeds may be sown with a drill, in rows,

at the distance of about twelve or fourteen inches apart, in a manner very similar to that which is directed for the culture of onions.

And the intervals between the rows are to be kept clear of weeds, until such time as their further growth will be prevented by the growing crop covering the ground.

It is to be sown as early in the spring as the ground can be properly prepared; and, when the plants are in full blossom, they are to be cut off a few inches from the ground; when a new growth will come to maturity for cutting, as before directed, which, in this country, is all that can be expected as the product of a season.

In the West Indies, the plants are cut three, and sometimes four times in a season; but each succeeding cutting is much less in product than that preceding it. The culture of the crop is to be renewed every spring, and a sufficiency of the first growth is to be left standing for a supply of fresh seed.

After each cutting, the next process is the manufacture of the indigo, which would seem to be much the most difficult operation.

We shall not describe the method formerly pursued for obtaining the pulp, of which the indigo is composed, from the plants; as the frequent failures in this part of the business, together with the mortality occasioned by the miasma produced by the operation, have greatly discouraged many from embarking in the culture and manufacture of indigo: We shall therefore merely insert the directions of Dr. Roxburgh, for extracting the colouring matter from the plants.

'By the scalding process (says he) I have always, on a small scale, made from the common indigo-plant better indigo, than I could by fermentation (the old method) and in one-fourth of the time; and, what is also of great importance, without the smallest degree of that pernicious effluvia, which attends the manufacture of indigo by fermentation.'

He further observes, in substance, that the Hindoos, of the northern Provinces of Indostan, make all their indigo by boiling the plants, and precipitating the pulp or colouring matter with a cold infusion of the bark of the jambalong-tree: Yet, says he,

'Notwithstanding the inferiority of this bark, as an astringent, when its effects are compared with those of limewater, I have always found their indigo of an excellent quality, and very light; a cubic inch weighing only about one hundred and ten grains, and being of a blue violet-colour. The superior quality of this indigo must alone be imputed to the nature of the process by which the colour, or rather the base of the colour, is extracted from the plant.

'Besides the superior quality of the indigo obtained by the scalding-process, the quantity is generally increased by it: Moreover, the health of the labourer in this way is not endangered, as in the fermenting process, by constant and copious exhilations of putrid miasma. The heat employed expels most of the fixed air during the scalding, which renders a very small degree of agitation, and very little of the precipitant, necessary. The operation can also be performed two or three times a day, upon a large scale;

and the indigo dries quickly, without acquiring any bad smell, or putrid unwholesome tendency.'

After the boiling or scalding has been properly executed, the liquor is to be drawn off, and is then to be agitated or churned, until the colouring matter begins to granulate, or float in little flakes on the water; and when this curdling or coagulation has been completely effected, which is usually done in about fifteen or twenty minutes, a strong impregnation of limewater, prepared in a vat for the purpose, is gradually to be added, not only to promote the separation, but likewise to fix the colour, and preserve the matter containing it from putrefaction.

In the operation of churning, particular care must however be taken, not to exceed, or to fall short of, the proper degree of agitation: as too little of this will leave the indigo green and coarse; while too much will give it almost a black colour. When the proper degree of agitation has been given to the liquor, the colouring matter changes, on adding the limewater, from a greenish to a fine purple colour, which is the hue most proper.

After these operations, the curdled pulp is left undisturbed till it settles to the bottom, when the water above is drawn off, and the indigo is put into small linen bags to drain; after which it is put into little square boxes or moulds, and dried gradually in the shade, which finishes the manufacture.

The boiling or scalding of the plants, for obtaining the colouring matter, may be perfomed in a wooden vat, made for the purpose, by the aid of steam, in the manner now commonly practised in distilling.

Mr. Edwards, in his history of the West Indies, a work whence we derive most of the foregoing information on this article, says, that although the culture and manufacture of indigo held out great prospects of gain to those embarked in it, still the business was mostly given up; owing, as it would seem, to the difficulties and unhealthiness attending the old fermenting process for obtaining the colouring matter.

It would seem, however, that the scalding process, as above described, is calculated to obviate these difficulties, and to render the business profitable.

In the West Indies, it is found necessary to change the ground for rearing this plant every year; as the second year's crop, on the same ground, is liable to be destroyed by grubs, which, when changed into winged insects, prey on the leaves of the plant.

Changing the ground for the crop is found necessary in the southern States, as the ground soon fails for the culture, where it bears the plant yearly.

We have thought proper to direct the drill-culture, for committing the seeds of this plant to the earth, as being much the cheapest method.

In the West Indies, it is performed by digging trenches two or three inches deep, with the hoe, dropping the seeds by hand, and then covering them lightly with the hoe.

We, however, see no necessity for trenches being thus made, as

the beds for the seed; but, if they are requisite, they may be readily made with a scraper; and then the seeds may be laid and covered, in the bottom of the trenches, with the drill.

ON THE CULTURE OF POTATOES IN FLANDERS.

(*From Vanderstraeten's improved Agriculture.*)

As to the choice of grain and seeds for sowing, we ought never to use such as were grown on the lands to be sown; nor to regard the difference of expense attendant on the purchase of seed which is more healthy and heavier.

Of potatoes, we ought to purchase the sorts which are at the same time excellent in their quality, and superior in their produce. I have witnessed a striking example of the advantage to be derived from the change of these roots. Two farmers, who cultivated with equal skill and industry lands of an equal quality, and manured them in equal abundance, and who procured annually, from Brabant, for planting their potatoes, roots of an excellent kind, and which yielded, in that Province, 300 cwt. per English acre, while the other sorts yield, in the same Province, only 200 cwt.; these farmers obtained, from these roots, one year with another, 540 cwt. per English acre. At length, one of them imagined, that he might save the expense of carriage of his seed potatoes, by using those of his own growth, the produce of the Brabant sort. He made the experiment for two years; but the produce which he obtained was so inferior to that of his neighbour, that at the end of the term, he returned to his former practice. Another proof, which I shall adduce, to show the effect of change of seed upon the amount of the crop is, that when, during the latter years of the usurpation of Bonaparte, Flanders was deprived of her usual supply of flaxseed from the North, the crops of that valuable plant constantly failed, and the produce was not more than half the usual quantity.

Our author adds in a note: This great produce will doubtlessly astonish the English farmer. I shall beg the reader to reflect, that in England, the upper layer of the soil, from which the crops are produced, is never suffered to rest, may have lost a part of its ancient fertility; that dung is not spread in England with the same abundance as in Flanders; and further, that it is possible the species of potatoes grown in England have degenerated, as certain species have done, in some districts of Flanders. Thirty years ago, the produce of these species diminished from year to year, and the inhabitants were in fear of being deprived of this important root, through the refusal of the earth to yield it. The alarm was general; in so pressing an emergency, there was no time to make the experiment of sowing the seed; such an attempt never having been made. Some asserted that the seed of potatoes was barren, and others that it was fruitful.—A fortunate accident put an end to this perplexity. A physician, passing by a dunghill upon which the halm or staw of potatoes had been thrown, observed, at the insertion of the branches on the stem, some green threads, which, all the rest being dry, he suspected to be the germs of new plants.

He picked them off, planted them in his garden, and had a crop of potatoes from them. He published his discovery. His example was imitated : and, two years after the alarm had ceased, the practice became general, in the districts to which I refer, not to plant potatoes except in ground newly dug.—The new species obtained is superior in produce and quality to the ancient ones ; though inferior, in both respects, to those of Brabant. In thirty years, it has lost none of its good qualities.

ITALIAN CLOVER SEED.

A bag of clover seed was lately received by Dr. Mitchill, from Benjamin P. Dissam, M. D. Surgeon of the ship Cyane, U. S. Navy, now cruising in the Mediterranean. He procured it at Naples, where the plant is extensviely cultivated. It is there called "Semenza di Grato," and is considered as most excellent for feeding cattle. It is secculent, nutritious, and productive ; grows tall and supports itself with out falling to the ground.

The flowers are rudy, and when in full bloom, their clusters, at a short distance, look like roses. It is said, this species of clover is cultivating as an ornament for the borders of beds in parterres and gardens—Liberal distribution has been made, in parcels to cultivators and societies. And out of the residue, other citizens who are desirous to make a trial of it, will be cheerfully accomodated.

New York Evening Post.

TEA IN BRAZIL.

A few years since, some hundreds of Chinese, and a number of tea plants, were imported into Brazil from China; and in 1820 the plan had so far succeeded that the number of plants amounted to 6000; but it was found that although the leaves had been prepared precisely in the Chinese manner, the infusion had a rough and earthy taste, without any of the fine flavour of the tea of China. By this time the Chinese had become home-sick ; some had died and others left the garden and repaired to the town, and thus ended the tea project in Brazil. The Quarterly Review says the attempt to raise tea can never succeed where the prices of labour exceeds two or three pence a day.

Two farmers, who were neighbours, had their crops of early peas killed by the frost. One of them came to condole with the other on their misfortune.—"Ah!" cried he, "how unfortunate we have been, neighbour. Do you know I have done nothing but fret ever since. But bless me ; you seem to have a fine healthy crop coming up just now—What are these?" "These?" said the other, "why these are what I immediately sowed after my loss." "What, coming up already?" cried the fretter. "Yes, while you was fretting, I was working." "What, and don't you fret when you have

a loss?" "Yes, but I always put it off until I have repaired the mischief." "Why then need you fret at all?" "True," replied the industrious gardener, "and that's the very reason; in truth, it is very pleasant to have no longer reason to think of our misfortunes; and it is astonishing how many might be repaired with a little alacrity and energy."

THE UNIVERSE.

The circumference of the globe is computed to be 95,000 miles, and it revolves once on its axis in 24 hours; consequently any one spot on it is carried round 25,000 miles in that space of time—which is upwards of 1040 miles in one minute! Vast as this may seem, and in comparison of which the utmost degree of velocity which man has been able to produce, by the most ingenious contrivances, sink almost into nothing; yet when put in competition with the amazing velocity of the earth in its orbit, this of its diurnal revolution on its axis (though indeed astonishingly great,) is comparitively trifling and insignificant.

The distance of the sun from the earth is 195,000,000 miles, which being the radius of the earth's orbit, we shall have its diameter 390,000,000 miles, and consequently the circumference 1225,000,000. Now as the earth revolves round the sun once in in 365 days it would travel (dividing 1225,000,000 by 365) about 3,360,000 miles, in one day, or 140,000 in an hour. By this calculation we shall find that the earth is whirled through the immense regions of space at the amazing, the inconceivable velocity of 2,330 miles in a single minute of time!

Astonishing as this fact is, yet when compared with those things which have come more immediately under our observation, is by no means irreconcilable. Those who know with what great rapidity the blood is driven from the heart to the extremities of the human system, and reflect that this rapidity is no greater than is actually necessary for the health and support of the body, may conceive with what velocity such vast bodies as this and other surrounding worlds must be impelled in their course, in order that they, as the several and various members which constitute the great system of nature, may be kept in their respective spheres, in a state of health, regularity, and good order.—For as an ingenious poet expresses himself.—

'Constant rotation of th' unwearied wheel,
That nature rides upon, maintains her health,
Her beauty, her fertility.—She dreads
An instant's pause, and lives but while she moves.'

RAISING CUCUMBERS.

I have dried this process of raising cucumbers many years with

success. I place an old hogshead or barrel on the south side of a hole, with rock or refuse brick ; put on a handful of straw, six or building, in the warmest place I have ; fill it as high as the bung 7 inches of dirt on that, leaving about two inches unfilled ; put my seed on that ; throw brush from the cask around, put an horn in the bung hole ; occasionally pour in a pail of water.—The straw will conduct it to the roots of the cucumbers. They will need no other watering, be three weeks earlier, and bears as many as you can raise from twenty hills, planted on the surface.

Author of Touches on Agriculture.

THE SEASONS.

Sweet are spring's earliest flowers
From the green moss peeping ;
Sweet are man's infant hours,
On beauty's bosom sleeping :
Yet oft a blighting storm
Withers the tender form,
E'en on the parent's arm,
While friends around stand weeping.

Gay smile the summer bowers,
Birds their music lending ;
Bright shine man's youthful hours,
Joy each day attending :
Yet oft do clouds arise,
That shade the sunny skies,
They speak thus to the wise,
Seek joys that have no ending.

See autumn, bounteous, kind,
Industry regarding ;
See man's well cultur'd mind,
Youthful care rewarding ;
Yet oft the summer day
Is past in mirth away,
" Live while you live," some say,
All anxious thoughts discarding.

Now winter reigns severe,
Nature's charms concealing ;
Man's closing scene is near ;
Earth's vanities revealing :
But with a plenteous store,
We smile at winter's pow'r ;
So he with wisdom's lore,
Content is ever feeling.

ROSALIE.